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CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Human and Comparative Placentation, including the Early Stages of Human Development. II. The Early Stages of Human Development. III. Human Placentation and its Meaning. By Prof. OTTO GROSSER, M.D.—(*Illustrated*) 1053
Menstruation and the Menopause in Mental Disease. By Prof. G. I. STRACHAN, F.R.C.P., and IAN SKOTTOWE, M.D. 1058
Radiographic Findings in the Late Months of Pregnancy. By D. M. LINDSAY, F.R.F.P.S.—(*Illustrated*) 1061
Immunisation of Tuberculous Children against Diphtheria with Formol Toxoid. By H. J. PARISH, M.R.C.P. 1063
The Incidence of Laryngeal Cancer. By JAMES MAXWELL, M.R.C.P., and J. CECIL HOGG, F.R.C.S. 1064
Congenital Atresia of the Bile-ducts. By A. G. WATKINS, M.R.C.P., and G. P. WRIGHT, D.M. 1066

CLINICAL AND LABORATORY NOTES

A Case of Agranulocytosis. By ADOLPHE ABRAHAMS, F.R.C.P. .. 1068
A Case of Hepatomegaly due to von Gierke's Disease. By E. C. WARNER, M.R.C.P.—(*Illustrated*) 1070
Two Cases of Acute Aseptic Meningitis. By F. J. S. GOWAR, M.B... 1071

MEDICAL SOCIETIES

Ophthalmological Society of the United Kingdom: Ætiology of Primary Glaucoma ... 1072
Medical Society of Individual Psychology: Sterility of Modern Psychiatry 1074
Royal Academy of Medicine in Ireland: Myelogenous Leukæmia 1075

REVIEWS AND NOTICES OF BOOKS

Food and the Principles of Dietetics. By Robert Hutchison, F.R.C.P., and Prof. V. H. Mottram, M.A. 1076
Varicose Veins and Hæmorrhoids. By V. Meisen, M.D. Translated by Hans Andersen, M.D. 1077
Les maladies des veines et leur traitement. By G. Delater. 1077
Injection Treatment in Medical Practice. By David Levi, F.R.C.S. . 1077
Injection Treatment of Varicose Veins, Hæmorrhoids, and other Conditions. By R. H. Maingot, F.R.C.S. 1077
Journal of Pathology and Bacteriology 1078

LEADING ARTICLES

A NEW ANALGESIC DRUG ON TRIAL 1079
PHYSIOLOGY OF THE PLACENTA 1080
KETOSIS AND THE PITUITARY GLAND 1081

ANNOTATIONS

Barbers and Surgeons ... 1081
Accident Proneness 1081
Alleviation of Pain in Osteo-arthritis 1082
Brought in Dead 1082
Surgery of the Thoracic Œsophagus 1082
Dextrose Therapy in Hepatic Disease 1083
The Capillaries in Rheumatism 1083
The Allergic State 1084
X Ray Therapy in Hæmolytic Icterus 1084
Popular Medicine 1085
Quinine Distribution in India 1085

NEW INVENTIONS

New Form of Abdominal Sucker. By Charles E. Kindersley, F.R.C.S.—(*Illustrated*) 1078
Renal Pedicle Needle. By H. P. Winsbury-White, F.R.C.S.—(*Illustrated*) 1078

SPECIAL ARTICLES

Latent Immunisation in Measles. By PERCY STOCKS, M.D. 1086
Medicine and the Law: Inquests and Secrecy . 1089
Paris: Dichotomy.—Leprosy in Paris.—B C G in a Mining Area 1090
Scotland: A Critic of the Medical Curriculum.—Mothercraft 1091
Ireland: The Medical Profession and the Temporary Economies Bill 1092

PUBLIC HEALTH SERVICES

The Economics of the School Medical Service.—Puerperal Fever at Plymouth.—Rural Water-supplies 1094
Infectious Disease in England and Wales 1095

OBITUARY

Prof. J. T. Jackman Morrison, F.R.C.S.—(*With portrait*) 1095

THE SERVICES

Royal Naval Medical Service.—Royal Army Medical Corps.—Indian Medical Service.—Royal Air Force Reserve 1093

PARLIAMENT

Notes on Current Topics: Spurious University Degrees.—Pharmacy and Poisons Bill.—Essex County Council Bill.—Matrimonial Causes Bill.—Rent Restrictions (Amendment) Bill. 1099
House of Commons: Water-supply.—Death-rate at Stockton-on-Tees.—Young Persons and Sexual Offences.—Imports of Processed Milks.—Public Health Services in Scotland.—Industrial Pulmonary Diseases. — Pensioners and Treatment Allowances.—Anti-diphtheria Inoculation in Italy 1101

MEDICAL NEWS

Univ. of Oxford 1096
Univ. of Cambridge 1096
Roy. Coll. Surg. Eng. 1096
English Conjoint Board .. 1096
Royal Buckinghamshire Hospital 1085
Utilisation of Fuel 1097
Tuberculosis Scholarships in Rome 1097
Univ. of Manchester 1097
Conference on Cremation 1097
A Clinic in Willesden 1097
Royal Institution 1097
Third International Pædiatric Congress.... 1097
Memorial to Dr. Parkin of Malton 1098
Aberdare General Hospital 1098
London Refraction Hospital 1098
Bedford County Hospital 1098
Bolingbroke Hospital.... 1098
Florence Nightingale Hospital for Gentlewomen 1098
Hospital Extensions 1098
Eye and Ear Hospitals .. 1098
Univ. of Birmingham.... 1908
Univ. of Lond. Med. Grad. Soc. 1098
A Sun Walk at Harrogate 1098
St. Mary's Hospital, London 1098
Presentation to a Medical Officer of Health..... 1098
National Hospital, Queen-square 1098
St. John's Hospital for Diseases of the Skin.. 1103

NOTES, COMMENTS, AND ABSTRACTS

Pistol or Poleaxe..... 1104
The Psychology of the Opium Addict..... 1104
Malaria and Climate 1105
The Sense of Guilt 1105
The Doctor's Private Life 1105
The Swelling of Proteins 1105
About Wine 1105
Early to Bed 1106
A Special Spa Number.. 1106
Tumours of the Round Ligament 1106
"Hairy Tongue" 1106
Unwanted Bicycles..... 1106

Medical Diary..... 1102
Appointments 1103
Vacancies 1103
Births, Marriages, Deaths 1103

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By Otto Grosser, M.D.
PROFESSOR OF ANATOMY IN THE GERMAN UNIVERSITY, PRAGUE

II.—THE EARLY STAGES OF HUMAN DEVELOPMENT

In the beginning of embryology, something more than 100 years ago, it was the development of the fowl that was, so to say, the paradigm for warm-blooded animals, and later on, when mammals also were considered, the rabbit took its place. Other laboratory animals, especially mice and rats and the guinea-pig, seemed to be quite enigmatic, and their development could not be understood before the invention of serial sections; whilst in the larger animals the size of the uterus and, in man, the scarcity of material, together with some difficulties that will be mentioned later, were serious obstacles to investigation. Unhappily, we may say, the fowl and the rabbit show certain fundamental similarities not universally found, such as the formation of the primitive streak and the mesoderm, of amnion, yolk-sac, and allantois; and when their mode of development was believed to be generally characteristic of higher vertebrates, a great deal of work was wasted in searching for some of the same features in man and in trying to prove their existence in human development. Especially the formation of the amnion by the closure of amniotic folds, and the outgrowth of a free vesicular allantois, were, again and again, looked for and even depicted from human material, and it was not until a considerable advance had been made in comparative embryology, due, in the main, to the Dutch scientist Hubrecht, that a satisfactory review of the few well-established facts in human embryology could be given at the end of the first decade of this century. Since then this knowledge has been confirmed and extended by the study of a number of new specimens; but, notwithstanding, it must be confessed that the very early stages are as yet unknown, and there is even little hope that they ever will be known with such completeness as would be desirable. It is proper to mention, among those who have advanced our knowledge of human embryology, the names of His, Keibel, Peters, and Spee from Germany and Austria, and of Bryce and Teacher from Glasgow.

Embryo Formation in Fowl and Rabbit

The main feature in the development of the fowl and the rabbit may be considered to be the expansion or spreading out of the primordia of development, the embryonal layers, or "leaves" as they are called in German, on the surface of the yolk or, in the rabbit, of a vesicle situated in the lumen of the uterus and called the mammalian blastocyst. This extension of the mammalian embryonal rudiment on a vesicular surface is one of the strongest embryological arguments for the derivation of the mammals from ancestors with ova rich in yolk—that is, from reptiles. From this flat surface arise the amniotic folds which unite on the dorsum of the embryo, whilst round the yolk or the blastocyst, the embryonal layers are extending; a little later, a vesicular allantois grows into the extra-embryonal cœlom and, uniting with the chorion, brings to it the vessels necessary for its vascularisation. It is only then that the chorion, in the bird's egg, can begin to exercise its respiratory function, and, in the rabbit, its resorptive function as the fœtal constituent of the placenta. At the same time, this union of allantois and chorion fixes the embryo solidly to the embryonal membranes, forming the basis of the umbilical cord.

All these happenings are fundamentally different in man. Even the youngest known human ova are not situated free in the uterus, but are embedded in the uterine mucosa and have disappeared under its surface. They never present freely extended germinal layers, but always contain a very small embryo with a closed amniotic cavity and a very small, closed yolk-sac, the embryo being fixed, from the beginning, to the chorion by a mesodermic formation called the body-stalk, and containing a rudimentary allantoic duct (Fig. 9), whilst a free vesicular allantois is never to be found. The cavity of the ovum is not filled with a liquid but with a curiously adhesive and coagulable mass called the magma reticulare, that makes preparation of fresh material impossible and has caused, in former times, the loss of nearly all such specimens; it admits only of investigation by sections.

Embryo Formation in Other Mammals

It is therefore necessary to suppose in man some considerable differences in the first stages, compared with the paradigm of the fowl or rabbit. These differences will in part be analogous to the mode of embryo-formation seen in other mammals—e.g., certain insectivora and bats, among them the hedgehog; but the existence of specific peculiarities in man must be admitted, or rather, in man and monkey. It is surprising that our knowledge of the development of monkeys is, till now, still more defective than that of man. For primates in general, however, many interesting details have recently been pointed out by Prof. J. P. Hill, and the Carnegie Laboratory of Embryology in Baltimore is going to publish a fairly complete series of stages in the development of Macacus, so that it is to be hoped that, within a short time, many of the doubtful points in the development of the primates will be elucidated.

The development of birds (and reptiles) begins with the formation of two layers of cells, an outer and an inner layer; it may be demonstrated that the inner layer has the function of resorbing the yolk or vitellus (it is called paraderm or lecithophore), whilst the outer layer contains the total rudiment or anlage of the embryo. The differentiation of the latter begins from a central area of the outer layer, called the embryonic shield, and in the caudal part of it appears the primitive streak (or the primitive plate) from which an invagination, either very apparent as in snakes and tortoises, or more or less (or even totally) masked as in most birds, gives origin to the internal organs. The embryonic shield differentiates into the central nervous system and the epidermis.

In all higher mammals there is one fundamental difference from the sauropsidian primordium. The ovum is divided, by segmentation, into an inner cell mass called embryoblast, and an outer cell layer, the trophoblast (Fig. 5). This, later on, forms the epithelium or ectodermal layer of the chorion, whilst the embryoblast forms all the other parts, the embryo, amnion, yolk-sac, and allantois including all the mesoderm, even the mesoderm of the chorion.

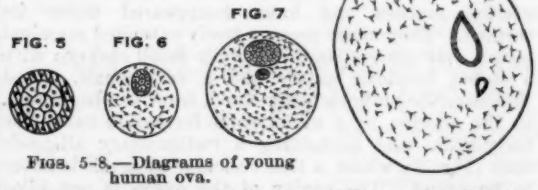
The great importance of the chorionic epithelium, upon which special stress has already been laid,

* Being the substance of three advanced lectures in Human Anatomy delivered before the University of London on May 2nd, 5th, and 6th, 1932. Part I., on the General Principles of Placentation, appeared in THE LANCET last week.

cannot be shown more impressively than by this precocious segregation of it from all the remaining parts. Between the trophoblast and the embryoblast, fluid accumulates and so we have formed the mammalian blastocyst mentioned at the beginning of this lecture; the embryoblast remains attached to one pole of the blastocyst and produces, on its internal surface, by delamination, the lecithophore.

But in the later development of the rabbit, the embryoblast is again inserted or intercalated into the trophoblast and forms, with it, the wall of the blastocyst whose further development corresponds nearly in every respect to that of the fowl.

In other mammals, matters are rather different. We cannot consider all the possibilities, but we may follow the line the ovum of the hedgehog takes, as this is a line highly similar to that of man.



FIGS. 5–8.—Diagrams of young human ova.

FIG. 5.—Ovum just segmented; stage of the morula. Trophoblast and embryoblast separated. FIG. 6.—Embryoblast divided into morula-mesoderm (magma reticulare) and an epithelial cell-mass (perhaps stage of the ovum SCH of v. Moellendorff). FIG. 7.—The epithelial cell-mass has divided into an ectodermal and entodermal (lecithophoral) cell-knob. FIG. 8.—The cell-knobs now form two vesicles (amniotic cavity and yolk-sac). FIGS. 5–7 are hypothetical. FIG. 8 is the ovum of Bryce-Teacher, following the reconstruction of 1924. In FIG. 5 the trophoblast is hatched, in FIGS. 6–8 it is represented by the bounding line.

The trophoblast, in the hedgehog, forms the wall of the blastocyst and appears as a rather thick layer with several strata of cells. The embryoblast divides itself into two cell knobs, and in both of them a cavity appears, so that there are two vesicles contained in the blastocyst, the larger corresponding to the amniotic vesicle, the smaller to the yolk-sac. Where they are in contact, the embryonic shield and primitive streak are formed from the floor of the amniotic vesicle, and the outgrowing mesoderm covers and ensheathes the outer side of the two vesicles and the inner side of the trophoblast, so changing the cavity of the blastocyst into the extra-embryonic cœlom.

So far, there is only one conspicuous difference between the blastocyst of the hedgehog and the youngest known human ova: in man a blastocyst filled only with liquid has never been observed, but the youngest ova which have been obtained have a very loose mesodermic tissue, poor in cells and rich in intercellular substances (Figs. 6, 7, 8). This is the magma reticulare, already mentioned. [In this respect, only one ovum, that of Kleinhans, one of the two youngest observed in situ, is not clear, but it is represented by only a single fortuitous section.]

The appearance of this mesoderm is surprising, because in other mammals, the mesoderm investing the inner side of the blastocyst is derived from the primitive streak; the primitive streak is either the single or at least the first source of mesoderm formation in the blastocyst. But in man, mesoderm is present long before the appearance of the primitive streak. It connects, from the very beginning of differentiation, the amniotic vesicle and the yolk-sac vesicle with the outer wall of the blastocyst. With progressive development, its peripheral zone, gaining a more fibrillar structure, is transformed into the connective ground layer of the chorion, supporting the trophoblast, and its union with the embryonic vesicles forms the body-stalk; in this way the human embryo is from the beginning in connexion with the chorion, whilst in other amniota this union is, as was already said, delayed until the outgrowing allantois reaches the chorion and unites with it. The precocious union of embryo and chorion by the body-stalk explains, in man, the rudimentary character of the allantois and its reduction to a narrow channel or tube in the body-stalk.

A further point that makes this mesoderm peculiar is its vasoformative faculty. Whilst in other mammals the vessels of the chorion are derived from the allantois and therefore can begin their function only when the outgrown allantois has reached the chorion through the exocœlom, in man the chorion is very soon ready for its main function, the resorption of nutriment, as the vessels of the chorion appear about the same time as the first vessels are formed in the embryo or in its appendages including the yolk-sac. The circulation of the chorion is, already in very early stages, prepared for working.

FIG 9

Ovum Gle. of Graf Spee, 1899. Extra embryonal cœlom established around the embryo with exception of the region of the body-stalk.

When the features characteristic of human ova were enumerated, it was mentioned that even the youngest of them was not found on the surface of the uterine mucosa, but was completely embedded in it, so disappearing below its surface. Here again the explanation of this condition was only given after we had learned from comparative embryology how different the ways of fixation of the ovum to the mucosa can be. We call this fixation the implantation of the ovum and distinguish (with Bonnet) three kinds of implantation; (1) central, (2) excentric, and (3) interstitial or intradecidual.

In the *central* type, the ovum remains in the central lumen of the uterus and, only after having reached a certain size, enters into relation with the mucosa, either over its whole surface or over a part of it.

In *excentric* implantation the ovum glides into a furrow or a crypt of the mucosa and is therefore already at the beginning of development, in the closest contact with the mucosa. Still more intimate is this contact in the third type of implantation, the *intradecidual*, in which the ovum, by its own activity, penetrates into the mucosa itself through a hole formed in its surface, probably by the tryptic or fermentative activity of the trophoblast, whilst some active amœboid movement of the superficial cells may help in this penetration.

Such is the case in the guinea-pig and some other rodents, and certainly also in man. The ovum, from the moment it has found its place of attachment in the uterus, lives upon the material it earns by destroying the mucosa, slips into the hole formed in this way, and by excavating the implantation cavity, it has more material at its disposal than it is able to make use of for building up its body. This material is stored up in the mesoderm of the blastocyst to form the magma reticulare; to this storage of albuminoid material the magma owes its adhesive and coagulating qualities. Primarily, in the ancestors of the mammals, the yolk-sac was the place of storage of material for development; but lost functions cannot be acquired again by the same organ in phylogeny, and therefore we find here a newly formed organ, the mesoderm, that takes up this function.

We have said that, in man, the initial mesoderm of the blastocyst cannot be derived from the primitive streak, as it is present before the appearance of the latter. Its source, therefore, is unknown and somewhat obscure, but its most probable derivation goes back to the stage that is called the morula in mammals.

At the end of segmentation, the ovum, in mammals, is, as has already been said, a solid globe of cells, formed by an outer layer, the trophoblast, and an inner cell-mass, the embryoblast. This inner cell-mass is now supposed, in man, to divide into three parts, the ectoderm, the yolk-entoderm, and the initial mesoderm, whilst the rudiment of the primitive streak and the mesoderm of the embryo are contained in the ectodermal cell-mass. (Some observations seem to point to the supposition that this extra-embryonal or primitive mesoderm is derived, not from the undifferentiated morula itself, but from the caudal part of the ectodermal cell-mass (Hill, Florian). This view would provide a theoretical explanation of the mode of formation of this curious mesoderm; practically, in my opinion, it would make no great difference from the view adopted here and suggested for the first time by Strahl, the name "morula-mesoderm" being proposed by Stieve.) It seems therefore best to call the initial mesoderm of the blastocyst the morula-mesoderm; in the main, it forms, later on, extra-embryonal mesoderm, with vasoformative and storing qualities, but it is not certain and, perhaps, not of great importance, if the limits of this mesoderm do exactly correspond to the later limits between embryo and extra-embryonal appendages. Doubts about the mesodermal nature of the magma are entertained by the Belgian embryologist, Gérard. We cannot share them.

It is interesting to note that, in the course of phylogeny, the three germinal layers found already in the anamnia undergo, in the amniota, successive differentiation into an embryonal part and an extra-embryonal part separated from the main cell stock already during or at the end of segmentation. The first layer to undergo this division is the entoderm; all amniota form, in the course of segmentation or immediately following it, a yolk-entoderm (paraderm, lecithophore), whilst the embryonal entoderm, at least in principle, is differentiated from the embryonic shield by a gastrular invagination, together with the whole mesoderm. It is true that later on, in the development of the various types of amniota, the limits between the origins of the two kinds of entoderm become indistinct, and the amount of embryonal entoderm formed by invagination may be reduced to nothing, the invagination producing only mesoderm and the chorda dorsalis. Also in mammals a lecithophore is formed, being again a strong argument for their derivation from reptiles with large ova, rich in yolk. But in mammals in general, it is the ectoderm that is, in a similar way and even at an earlier stage of individual development, in the morula, divided into trophoblast and embryoblast. And lastly, in primates, the mesoderm has become divided into morula-mesoderm and the mesoderm of the primitive streak. In all these cases the special feeding circumstances of the embryo are the cause of new steps in development, and we see the enormous influence of this factor. But at the same time we see that the development of man has followed quite a special line, going beyond the adaptations reached by other mammals; it is the extreme specialisation of man, in this and many other respects, that we propose now to consider.

FIG. 10

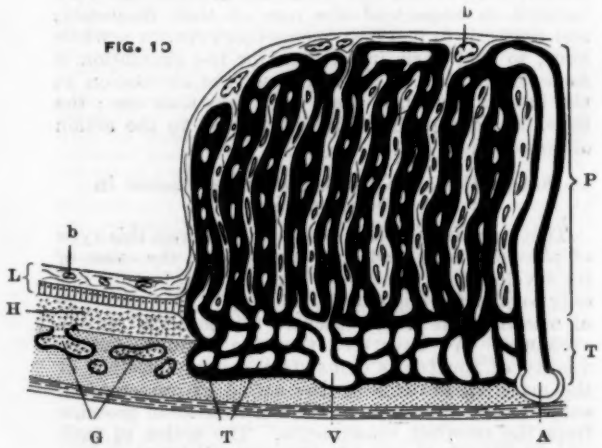


Diagram of a placenta hæmochorialis labyrinthica. The trophoblastic syncytium is shown in black. It forms lamellæ which contain the maternal capillariform blood spaces and which are separated by mesoderm carrying the fœtal capillaries. The maternal blood streams from the fœtal to the maternal surface, the fœtal blood in the opposite direction. Below the labyrinth (P) is marked a layer of trophoblastic syncytial lacunæ (T) without fœtal vessels between them (as for example in the placenta of the hedgehog or the guinea-pig). The mucosa is dotted. The chorion læve (L) bears an actively resorbing epithelium; the histiotrophe (H) is provided by the maternal glands (G). The maternal epithelium opposite the chorion læve may be present or shed. b = fœtal blood-vessels. A, V = maternal arteries and veins.

FIG. 11

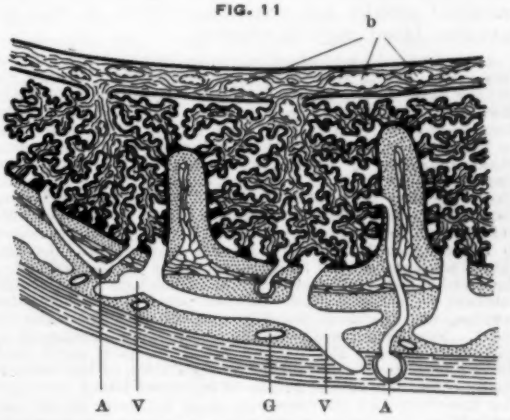


Diagram of a villous placenta. Trophoblast shown by a heavy black line. The intervillous space extends between the chorionic plate and the basal (mostly degenerated) trophoblast and is therefore situated within the fœtal tissue. The basal plate is folded to form the septa placentæ between the main stems of the villi. The distribution of the maternal vessels has no influence on the formation of the septa and therefore is in no sense bound up with them. Letters as in Fig. 10.

III.—HUMAN PLACENTATION AND ITS MEANING

We have stated that the placenta of man is of the hæmochorial type—that is to say, that it is characterised by immediate contact between the maternal blood and the epithelium (trophoblast) of the chorion. This type, found in a series of mammalian families, is represented among them by two modifications distinguished by the structure of the spaces in which the maternal blood is contained. These spaces, limited exclusively by trophoblast, are either similar in form to capillaries, or they are confluent into one continuous blood space into which arborising villi of the chorion dip. We call the first type the labyrinthine placenta (Fig. 10); it is characteristic of rodents and insectivora. The second is called the villous (or olliform) placenta (Fig. 11); it is to be found among primates, and especially in man, whilst some smaller groups of mammals and some of the monkey families show intermediate types. In the villous placenta we may distinguish a basal plate formed by a layer of decidua, but covered by a sheath

of trophoblast (which soon undergoes marked degeneration), a chorionic or covering plate, and the villi which originate from the chorionic plate and may terminate freely in the intervillous space, or may be fixed to the basal plate. Into the intervillous space maternal arteries and veins open freely, so that the maternal blood may be renewed.

A word may be said about the mode of formation of these two types. It is always the trophoblast which takes the leading part. In the labyrinthine placenta an early localised thickening of the trophoblast becomes divided, by ingrowing fœtal mesoderm, into strands or leaves, and at the same time, or before or even afterwards, it provides for the maternal blood channels of capillary size running through these strands or leaves. It is not quite certain if the maternal blood pressure plays an active rôle in the excavation of these channels; probably this rôle is not very important, so that the formation of the maternal blood path is due rather to active growth processes in the trophoblast. In the villous placenta a very thick initial layer of trophoblast—the trophoblast sheath or "Trophoblastschale" of German authors—is, in a sponge-like manner, penetrated by irregular cavities, the so-called blood-lacunæ, filled with maternal blood. For the origin of these lacunæ the same considerations hold good as for the narrow blood channels mentioned above; they are formed rather by separation of the trophoblastic cells than by the action of maternal blood pressure. The mesoderm, by its ingrowth, does not now divide the trophoblast into leaves or strands; it forms arborising villi between the lacunæ, and by this sprouting process of the mesoderm, the trophoblast is extended over the surface of the villi and drawn out into a thin covering layer, the villous epithelium."

From the above description it would appear that the mesoderm is the active agent forcing the trophoblast to assume its definitive form. In reality, it is more probable that the trophoblast, an epithelium, leads also in this process, and that the mesoderm follows in such a way that it fills out excavations formed in the trophoblast. But proof of this cannot be provided, and the first mode of describing the process lends itself to easier understanding.

That the trophoblast is a very active tissue, apparently more active by far than the mesoderm, is demonstrated by the intensity with which it attacks maternal tissues. But this faculty rapidly decreases; it is greatest during implantation and the formation of the cavity for the ovum in the mucosa, but it gradually dies away during the first half of pregnancy.

Composed, in the beginning, of discrete cells, and constituting the cytotrophoblast or cytoblast, its superficial parts are early transformed into a plasmodium (plasmodiblast), and this is especially the case where the trophoblast enters into contact with the maternal blood, so that very soon resorption is exclusively a matter of the plasmodial surface of the intervillous space. The cytoblast is, in greater part, consumed by this transformation; parts that are not transformed into "villous epithelium" form cellular islands and knobs between the villi. In these cell islands degeneration of the trophoblast begins very early and produces homogeneous masses, easily stained with eosin, and very similar to, but not identical with the fibrin formed by blood coagulation. We call this substance fibrinoid. Very soon the plasmodium also joins in the formation of fibrinoid, and, with progressing pregnancy, we can gradually follow this degenerative change, which, at the end of pregnancy, seriously handicaps the normal function of the placenta.

We consider this degeneration to be a result of senescence of the trophoblast. In various parts of the body we find that tissues have a shorter lifetime than the whole organism; it is sufficient to name here the thymus gland, which nearly disappears with puberty, and the ovary, which atrophies with the climacterium. The trophoblast lives, on the average, as long as the normal duration of pregnancy, and this limit of its life is the real reason for the temporal delimitation of pregnancy.

One of the consequences of this senescence and degeneration of the chorionic epithelium or trophoblast, is that the protective power exercised by the placenta over the individuality of the fœtus slowly decreases in the course of pregnancy. It is very probable that the relatively enormous size of the liver in embryonal and fœtal life is, in part, explained by the faculty of control the liver eventually assumes in relation to the blood coming from the placenta.

The Renewal of Blood in the Placenta

How is the renewal of blood in the placenta effected? The fœtal circulation follows everywhere, in the various types, the general line of organ circulation, the arteries dividing into capillaries, and these uniting to veins. But for the maternal blood spaces the problem is different for the two types of hæmochorial placenta.

For the labyrinthine placenta Mossman has shown that quite generally maternal arteries pass through the labyrinth to the fœtal surface, and the maternal capillary-like spaces run to the base of the placenta, whilst the fœtal blood stream flows in the opposite direction (Fig. 10). In this way, whilst the exchange of material is going on, the osmotic gradient between the two kinds of blood remains approximately constant. On the fœtal side of the placenta fresh maternal blood is contiguous to fœtal blood already to some extent stored with resorbed substances; on the basal (maternal) side somewhat exhausted maternal blood is adjacent to yet uninfluenced (venous) fœtal blood.

In the villous placenta, the question of maternal circulation is not yet sufficiently elucidated. Maternal arteries and veins are rather irregularly distributed at the base of the placenta, and the formerly assumed importance of the septa placentæ as the pathways of the arteries has been proved to be an error. The maternal blood pressure cannot exert its influence over the whole intervillous space with its very irregular bays and lacunæ, and especially near the fœtal surface; the action of the maternal current must be a minimum.

I have tried to explain the renewal of the maternal blood by the contractions of the uterus which occur during the whole pregnancy and express the intervillous space like a sponge, a thing that is clearly demonstrated in pregnant uteri removed by hysterectomy. The operation provokes such contractions of the uterus that the intervillous space is found practically free from blood. But it follows from clinical observation that these contractions are very variable in respect of the rate of their frequency, and may fail to manifest themselves even for a whole hour, so that their importance for the circulation is somewhat dubious. In any case, the circulation in the intervillous space must be a very slow one; the blood is stagnant in it and is exposed to the action of the chorion.

Stagnation of Circulation as a Factor in Development

This stagnation, which seems to handicap this type of placenta, is in reality, in my opinion, the cause of its development. It is the task of the placenta not only to offer the opportunity and locality for exchange of material, but also to prepare this material for the exchange. We have seen that the chemical individuality of the fœtus demands the decomposition of the maternal proteins by the action of proper fœtal enzymes and the reconstruction of individual proteins from the resorbed constituents. The action of such enzymes requires a certain time, and it is more than doubtful if this time is given in labyrinthine placentas with really circulating maternal blood; it is certainly given in the villous type. This view is corroborated by the consideration that only the villous placenta is able by itself to supply all the needs of the fœtus. Labyrinthine placentas without exception are combined with supplementary arrangements that furnish to the embryo paraplacental material, mostly as histiotrophe, decomposing maternal secretions or tissues

that are digested, liquefied, and resorbed (Fig. 12). It is therefore probable that the labyrinth provides in the main only for the exchange of the respiratory gases, whilst the paraplacental material furnishes at least the main part of the albuminoids. Such supplementary paraplacental arrangements are, for instance, the resorbing external surface of the smooth chorion next to the placenta, or, as in rodents, of the yolk-sac, or, in other cases, lacunæ of the trophoblast without fœtal vascularisation. There exists an enormous, scarcely controllable, number of such

FIG. 12

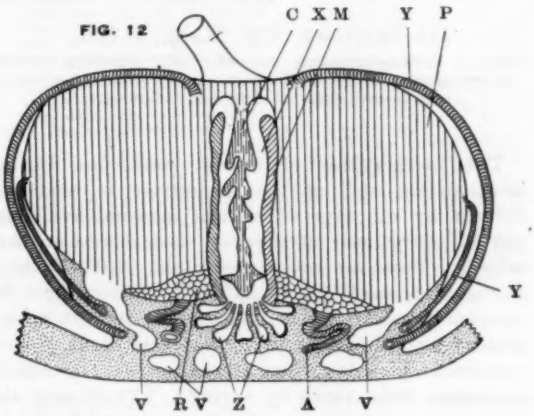


Diagram of the placenta of the insectivore Centetes, as an example of a highly complicated placenta, with many accessory adaptations. The main body of the placenta (P) is of the labyrinthic type, although with some transitional features to the villous type. The centre is formed by a large central villus (C), dipping into a central cavity (X), filled with the secretions of the central basal glands (Z) and bordered by a hematoma (M). The maternal arteries are partly arteries of the labyrinth (Y), partly arteries entering the basal syncytial lacunæ (R and A), from which the blood streams into the labyrinth. The maternal veins (V) take their origin from the base of the labyrinth.

possibilities, which in nearly every investigated species show new modifications.

The difficulties of circulation, especially in the superficial parts of the human placenta and the implantation of the maternal vessels into the basal plate, make plausible the supposition that the function of the superficial parts is, to a certain extent, different from that of the deep ones. In these, near the basal plate, where the maternal vessels enter and the circulation is more intense, it may be especially the gas exchange that takes place; in the superficial parts with the greater stagnation, the enzymatic action on the albumins has time to decompose them far enough for the individual needs of the fœtus.

But whilst, in this way, human placentation means simplification of transfer of material, making unnecessary any subsidiary mechanisms, one cannot pretend that it is much more efficient than the simpler types. The epitheliochorial placenta of the cow, for instance, is one of the simplest of existing forms; its weight relative to the fœtus is approximately the same as in man, the extension of the internal resorbing surface of both is comparable, and it is able to supply the growth of a fœtus of up to twenty times the human fœtal weight within the same duration of pregnancy. It is true that the two cases cannot be compared exactly, since on the one hand human growth is exceedingly slow—a distinctively human characteristic—and on the other, the parts and organs of the calf are far richer in water than those of the human child. But the example is intended only to show that the same end may be reached by very different ways.

But in the human villous placenta the simplification of transfer is offset by serious difficulties, especially as mentioned, in the circulation of the maternal blood. These difficulties, together with the normal progressive changes in the trophoblast, lead to coagulations of the blood, to obstructions within the intervillous spaces, to growth of the so-called white infarcts of the placenta, and finally to such serious handicapping of the maternal circulation that frequently towards the end of pregnancy the placenta is scarcely, or really no more, able to fulfil its normal function. On the other hand, the action on the maternal proteins and their decomposition may become so intense that the albuminoid fragments may re-enter the maternal circulation and lead to undesirable and even serious pathological effects. What is called toxicoses during pregnancy is, in my opinion, not or not exclusively produced by material emanating from the fœtus, but by these fragments of maternal proteins.

Conclusion

There are thus two factors that are unfavourable to the functions of the human placenta—the great tendency to form obstacles to the circulation within the maternal blood space, and the possibility of a noxious reaction on the mother. No doubt the human type of placentation is to be considered as the product of evolution and even as the terminal production of a phylogenetic line, an extreme expression of a structural principle, not to be continued or even to be surpassed. But such extremes have always been, in phylogeny, dangerous to their bearers.

In geological times many species have become extinct, and always they were the highest and mightiest existing. Always we find in such cases that some organ had been developed in an excessive way—the teeth, or horns, or the carapace, and sometimes the increase of size alone seems to have been disastrous, rendering difficult nourishment as well as defence or security of the soil. With this excessive, one-sided development is frequently united primitiveness in other respects, and sometimes also from an already specialised stem an offshoot may rapidly have overworked the specialisation until it became disastrous. Obvious examples that present themselves to the mind are the gigantesque reptiles of the mesozoic age; but there are famous cases also among the mammals—as the giant sloth, the Titanotherium, the mammoth whose tusks are curved in such a way that they can no more be used as a weapon; the sabre-toothed tiger (machairodus), whose canine teeth grew so long that the animal could scarcely open the mouth wide enough to seize the prey; and the Irish giant stag, whose antlers reached a transverse extension of more than six feet—such a weight that even an animal of the size of a bull could no more bear the weight, and such a size that it could no more get freely through the woods. The explanation of such particular and excessive formations is very difficult. They are not adaptations, and the only explanation I see—if it can be called an explanation—is the admittance of so-called orthogenesis. Orthogenesis is the inherent tendency of organisms to persevere along a line of development the species has entered upon. By internal and not yet well understood factors, the germ-plasm, when transmitted from one generation to the next, tends to undergo a continuous complication, a sort of progressive development from generation to generation, perhaps somewhat comparable to the changes the germ-plasm of the fertilised ovum undergoes in individual development when it produces the body. This tendency to orthogenesis may, in some species, be entirely absent, and we may imagine, then, that their germ-plasm has attained a very high degree of internal equilibrium, and therefore of stability. In other species we find a rapid geological development and subsequent extinction.

There is no doubt that the human species exhibits, on one side, many primitive features, whilst on the other it is extremely specialised. Among primitive

characters, the most conspicuous is pentadactyly; five is the primitive number of fingers and toes at the beginning of the terrestrial life of vertebrates, and this number, generally reduced among mammals, even as far as to one, and reduced more or less also in monkeys (reduction of the thumb), was preserved in man. There are many other primitive anatomical characters, of which we need only cite here the slight difference in size of the teeth, the simple form of the stomach, of the intestine, of the female, and even of the male genital organs. There are many surprisingly primitive details in development, curiously contrasted with the specialisations we have spoken of in the second lecture, as, for instance, the patent chordal canal, the head cavities and the branchial cœlom, the muscle buds. On the other hand, the human species is extremely specialised in its adaptation to the upright posture, in its development of the brain; it possesses a curiously progressive character in the development of the external nose, contrasted with the far-going reduction of the whole olfactory apparatus; and finally it possesses, as we have seen, an extremely specialised placenta. We must necessarily admit that these characters have not been attained by adaptation, but by orthogenesis, and therefore we are induced to believe that orthogenesis has not come to an end, that it is still in action. Only we must consider that orthogenesis is working within geological time measure, and that therefore it is completely exempt from direct observation. The geological time scale is at least a thousand or ten thousand times greater than the historical measure. It is not the century or the millenary that is the basis of geological and phylogenetic measure, but the hundred thousand and the millions of years. Within such time limits we can expect orthogenesis to change sensibly the organisation of man; we can expect disastrous effects from the continuation of growth and specialisation of brain and placenta—the more so as both already, to-day, are not free from troublesome effects on the whole genus. Such a lapse of time is very short for the history of the earth as a whole, shorter by far than the time to be reckoned for a sensible attenuation of the power of the sun and for the death of life on earth by refrigeration. It is curious to visualise the earth full of life, the sun shining over sea and land, but humanity extinct, having disappeared through the operation of internal factors, like other conspicuous and mighty species of former times, curious ruins alone remaining of what had once been the master of the world.

But a million of years is a very distant period; nations and kingdoms of to-day will have changed or disappeared in that time; and whilst orthogenesis is threatening our remote future, we may hope that in the meantime progressive development of mental faculties will empower us to ameliorate more and more our life, to make it safer, healthier, happier. And with growing insight into the forces of development and phylogenetic change, the man of a remote future will, in philosophical stoicism, await the end of humanity when it has accomplished its time on earth.

HOSPITALS AND THE FUEL OIL TAX.—Prince Arthur of Connaught, presiding at the annual meeting of the Middlesex Hospital, said that a number of the London hospitals which have adopted oil-burning plant combined to obtain better prices by coöperative buying and now consume 12,500 tons yearly. The new Budget tax would hit them very heavily. Since the lifeboats obtain their petrol tax-free he thought that it would be only reasonable that this advantage should be shared by the hospitals, which are also saving lives. The remission would cost £12,500 a year, a sum negligible to the Exchequer but of serious importance to the hospitals.

MENSTRUATION AND THE MENOPAUSE IN MENTAL DISEASE

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THE investigation of mental conditions during menstruation and at the menopause is rendered difficult by the type of clinical material available and by the paucity of previous observations on the subject. There are two rather vague current ideas: one is that scanty menstruation or amenorrhœa is common in mental illness; the other is that exacerbations of mental symptoms are likely to occur in the menstrual periods when these persist. Novak [1] epitomises these views by saying: "Practically all authors are agreed as to the frequency with which amenorrhœa is noted among insane women." He adds: "There is, however, a surprising lack of accurate observations on this score."

We have investigated the general relationship between mental and gynæcological disease in 250 consecutive adult female admissions to the Cardiff City Mental Hospital. The patients were first classified from the mental point of view and then, later and independently, from the gynæcological point of view. The definition of "normal" menstruation adopted was menstruation appearing every four weeks and lasting four or five days. "Menorrhagia" means the persistence of bleeding for more than seven days, and "scanty" menstruation indicates a duration of less than two days. By "irregular" menstruation we do not imply an irregularity of a few days only, but of several weeks; and under the term "dysmenorrhœa" we do not include cases with vague discomfort, but only those with severe pelvic pain.

As a control series 1000 gynæcological cases in good mental health were studied. Of these, only 10 per cent. had passed the menopause, whereas, of the 250 mental cases, 61, or 24·4 per cent., were beyond menstrual life. The proportion of patients in the post-menopausal period appears to be high in mental hospitals. F. H. Healey [2] found nearly 50 per cent. of 474 cases of mental disease to be beyond the menopause.

A CLASSIFICATION OF MENTAL CONDITIONS

We have adopted a simple psychiatric system, evolved by one of us,[3] in which cases are classified as follows, according to their clinical criteria. We have included only cases of menstrual disorder in which no organic lesion was present. Thus if menorrhagia was found in association with fibrosis or with a fibroid of the uterus, the organic causal factor would be evident and the menstrual disorder would thus appear to have less association with the mental condition.

Classification

CLINICAL CRITERIA	NAMES OF PSYCHOSES
1. Disintegration of psychic functions, particularly disharmony between mood and thought content.	1. The schizophrenic psychoses.
2. Excessive display of any emotion which is in harmony with the content of thought and most appropriate to the situation of the moment.	2. The affective psychoses.
3. Persistent hallucinations or delusions of a personal nature, occurring without disintegrations of the psychic functions and in a setting of clear, unclouded consciousness.	3. The paranoid psychoses.
4. Clouding of consciousness, delirium, amnesia, disorientation, and other impairments of intellectual functions.	4. The organic psychoses: (*a*) Psychoses with organic brain disease. (*b*) Psychoses with other somatic disease.

Cases not covered by this classification are very few in number, and include—

5. Mental deficiency, with or without psychosis, for which we adopt the usual criterion of defective reason existing from birth or from an early age, to such a degree that the individual cannot maintain her place as a social unit.
6. Certain miscellaneous cases, including epilepsy, and one case of psychoneurosis.

From the psychiatric point of view, the cases under review may be tabulated as follows:—

1. Schizophrenia			54 cases.
2. Affective disorders—			
Depressed	70		
Manic	27		
Alternating	4		
	—	101	"
3. Paranoid state		45	"
4. Organic psychoses—			
With organic brain disease	2		
With other bodily disorder	24		
	—	26	"
5. Mental deficiency with or without psychosis		17	"
6. Miscellaneous cases—			
Epilepsy with psychosis	4		
Epilepsy with mental deficiency	2		
Psychoneurosis	1		
	—	7	"
		250	"

MENTAL DISEASES FOUND DURING MENSTRUAL LIFE

In our 189 cases in this period of life the mental conditions were:—

Affective disorders	66	cases.
Schizophrenia	49	"
Paranoid state	31	"
Organic psychoses	20	"
Mental deficiency	16	"
Miscellaneous cases	7	"
	189	"

Two of these—a melancholic and a schizophrenic—were pregnant, so 187 cases have to be considered.

Associated with these mental states were found the following menstrual conditions:—

	Cases and per cent.
Menorrhagia	14 (7·6)
Scanty menstruation	13 (6·9)
Amenorrhœa	11 (5·8)
Dysmenorrhœa	6 (3·2)
Irregular menstruation	4 (2·1)
Irregular and profuse menstruation	3 (1·6)
Late puberty	2 (1·1)

Thus menstrual abnormalities were present in only 53, or 28·4 per cent., of these cases, menstruation being normal in 134 cases. Further, it will be noted that the most common condition was not amenorrhœa but menorrhagia, and that amenorrhœa comes only third in the series. These findings do not accord with other observations. For instance, Ross,[4] investigating 395 mental patients, found amenorrhœa in 95 cases (just over 24 per cent.) and irregular menstruation in 83 cases (just over 21 per cent.), while Healey,[3] examining 243 patients at the menstrual age, found amenorrhœa in 14·2 per cent., dysmenorrhœa in 20 per cent., and menorrhagia in 12 per cent. of his cases. In the series investigated by Ross menstrual derangements were present in one-third of the cases; she quotes Esquirol and Morel to the effect that derangements of menstruation form one-sixth of the physical causes of mental disease.

Menstrual disorders appear to be most common in the affective psychoses. The number of cases showing menstrual irregularities in this series was as follows:—

	Cases.		Percentage met with in menstrual life.
Affective disorders—			
Depression	11		
Manic	9		
Alternating	4		
	—	24 (47%)	35
Schizophrenia		13 (25%)	26
Paranoid state		6 (11%)	16·4
Mental deficiency		6	
Organic psychoses		3	
Psychoneurosis		1	
		—	
		53	

In 36 cases (19 per cent.) definite exacerbations of the mental symptoms appeared at the menstrual period. The literature would suggest a higher percentage than this.[5–8] The schizophrenics seem most likely to show exacerbation, but there is no great difference between the four main groups, as shown in the following table:—

			Cases showing menstrual exacerbation.
Schizophrenia			12
Affective disorders—			
Depressed	5		
Manic	3		
Manic-depressed	1		
	—		9
Mental deficiency			8
Paranoid state			7
			—
			36

Epilepsy.—There were six cases of epilepsy in this series of 187 (3·2 per cent.), and of these four were nulliparous and two parous. Four improved, one recovered, and one died. The ages varied from 22 to 45, and the duration of the epilepsy from six months to almost the lifetime. Confusion, dementia, and imbecility were present in three cases. The condition was not in any way exaggerated at the menstrual period, nor were fits more apt to occur at that time. This observation is not in agreement with those of Healey[3] and others. In general gynæcological practice, cases are met with from time to time in which epilepsy only appears at menstruation, and these are usually very difficult to treat.

MENSTRUAL IRREGULARITIES ENCOUNTERED

Functional menorrhagia was found in 14 of the mental cases (7·5 per cent.) and in 1·3 per cent. of the control series. It was associated with—

Schizophrenia	in 5 cases out of 49	(10%).
Affective disorders—		
Manic	in 4	
Alternating	" 1	
	— 5 " " "	66 (7%).
Mental deficiency	3 "	
Paranoid state	1 case.	
	14 cases.	

Of these 14 cases ten were single and nulliparous; six were under 30 years of age, five were between 30 and 40, and only three were over 40. Only three cases recovered (one melancholic, one schizophrenic, and one paranoiac), while three improved, one

became worse, and one died. Improvement in the menstrual condition was capricious and often temporary, and bore no relationship to treatment, to the mental condition, or to mental improvement.

Scanty menstruation was found in 13 cases (6·9 per cent.) of the mental series and 1·3 per cent. of the control series. The mental conditions present were :—

Affective disorders—		
Depressed	in 5	
Manic	„ 2	
	7	out of 67 cases (10·5%).
Paranoid state	„ 3	
Schizophrenia	„ 2	
Organic psychosis ..	„ 1	
	13 cases.	

Of these 13 cases seven were nulliparous and six had borne children. Their ages varied from 24 to 49, and in two of them there was some irregularity of menstruation. Three recovered (a paranoiac, a melancholic, and an organic psychosis), three improved, and two died. Thyro-ovarian extract was given to five of them; a small erosion was scraped in two, but the others had no gynæcological treatment. The menstrual results were indefinite and did not seem to influence the mental results.

Amenorrhœa was recorded in 11 of the mental cases (5·8 per cent.) and in 1·9 per cent. of the controls. It was associated with—

Affective disorders—		
Depressed	3	out of 41 cases (7·4%).
Manic	1	„ „ 21 „
Alternating	1	
	5	cases.
Schizophrenia	4	„
Paranoid state	1	case.
Organic psychosis ..	1	„
	11	cases.

The ages varied from 19 to 45 years, and the period of amenorrhœa from three to six months. Eight were nulliparous, and three had borne children. In eight of them the mental symptoms preceded the amenorrhœa, while in the other three (one manic, one organic psychosis, and one schizophrenic) the amenorrhœa appeared first. Three recovered (a depressed, a manic, and a paranoiac), and one case of organic psychosis died a few weeks after admission. Menstrual records are only available for seven cases, but in all these the amenorrhœa cleared up under general mental treatment, sometimes amplified by thyro-ovarian extract, although only two of them recovered mentally, while two became mentally worse.

These results throw doubt on the statement that amenorrhœa is directly associated with the mental condition and that with the return of menses the mental state may be expected to improve. Nor have we found that amenorrhœa tends to appear at the onset of any mental illness, as is often stated, but we have no data to judge whether or not mental recovery without the return of menses is of unfavourable import as regards permanence of cure.

Dysmenorrhœa was present in six mental cases (3·2 per cent.) and in 10 per cent. of the controls. It was associated with—

Mental deficiency	in 2 cases.
Schizophrenia	„ 1 case.
Alternating state	„ 1 „
Paranoid state	„ 1 „
Psychoneurosis	„ 1 „

Four of these were under 30, one was 38, and another was 44 years old. All were unmarried and nulliparous. Pelvic examination revealed nothing abnormal in any case except one small cervical mucous polyp. In five cases the pain was regular, but in one case it appeared only three or four times a year. In four cases the mental symptoms were exacerbated at the menstrual period: the manic-depressive, the paranoiac, and two cases of mental deficiency. The cervix was dilated in three cases (a paranoiac, a schizophrenic, and a mental defective). In the paranoiac the menstrual condition was cleared up while the mental condition was unaffected, and in the mental defective the menstrual condition was relieved. The psychoneurotic was mentally cured and had no gynæcological treatment, but the manic-depressive has had several relapses. The dysmenorrhœa seemed to be improved by treatment to some extent in all cases.

Irregular menstruation was present in four cases and was associated with depression in two cases, mania in one case, and organic psychosis in one case

Irregular and profuse menstruation was present in three cases: a manic, a manic-depressive, and a mentally defective. One of these showed occasional slight dysmenorrhœa.

Late onset of menstruation was present in two patients: a schizophrenic, aged 28, who had menstruated for the first time three months before admission and whose pelvis was normal on examination; and a melancholic, aged 25, who had first menstruated at the age of 18, and in whom puberty appeared to be the precipitating factor of the mental illness. Menstruation in both was regular and normal.

THE MENOPAUSE IN MENTAL DISEASE

The menopause as a cause of certain forms of mental disease has long been taken for granted, and many writers, such as Marañon [9] and Riddoch,[10] have discussed the effect of loss of physical attraction at this period on the female mentality. Of our 250 cases, 61 (24·4 per cent.) were at or beyond the menopause, while in the control series only 10 per cent. had passed this phase. The mental disorders from which these women suffered were as follows :—

	Cases.		Age.
Affective disorders—			43–73
Depressed	29		
Mania	6		
	—	35	
Paranoid state		14	40–64
Organic psychoses		6	43–76
Associated with arterio-sclerosis	2		
Associated with alcoholism and drugs	3		
Associated with influenza ..	1		
Schizophrenia		5	43–49
Mental deficiency		1	56
		61	

In 30 cases (nearly 50 per cent.) the mental symptoms developed after the menopause. These 30 were: 19 affective disorders, 5 paranoiacs, 4 organic psychoses, and 2 schizophrenics. In 15 cases (25 per cent.) the mental symptoms developed before the menopause. These were: 7 affective cases, 7 paranoiacs, and 1 schizophrenic. In 5 cases the menopause and the mental symptoms appeared at approximately the same date. These were: 2 affective cases (both depressions), 2 organic psychoses, and 1 schizophrenic. In 11 cases the time relationship could not be ascertained. These were: 7 affective cases, 2 paranoiacs, 1 schizophrenic, and 1 mental defective.

Of these cases, 36 were married and 29 had borne children, and of 12 widows, 9 had borne children, while 13 patients (20·4 per cent.) were single and nulliparous. Percy Smith [11] found 34·5 per cent. of single women, Goodall [12] 42·1 per cent. of single women, and Craig [12] 21·5 per cent. The incidence of climatic insanity is, however, greater in single than in married women, because the proportion of single to married women in England is about 1 to 6.

In 36 cases (59 per cent.) there were no evident associated causes; in 10 cases (16·4 per cent.) there was a history of previous mental illness; in 2 cases

the family mental history was bad; in 2 cases the patient had been unstable and neurotic for some years; while the following causes were reported in one case each: alcohol, death of the husband, laparotomy, heavy nursing, and tuberculosis. In Smith's series 34 per cent. had suffered from previous attacks—a figure rather more than double our own.

Most of these patients did not show any gynæcological abnormalities beyond the ordinary atrophic changes. The following list shows the conditions present:—

Prolapse	1 case.
Subtotal hysterectomy	1 "
Tubo-ovarian cystic mass in the pouch of Douglas	2 cases.
Prolapse of the rectum	1 case.
Post-menopausal hæmorrhage without obvious cause	1 "
Erosion of the cervix	5 cases.

Gynæcological treatment was only carried out when there was a definite lesion; 36 cases had no treatment, and of these 15 recovered, 8 were relieved, and 2 died. They were composed as follows:—

Disease.		Recovery.	Relieved.
Melancholics	21	7	6
Paranoiacs	8	4	—
Manics	3	2	—

In 19 cases the ordinary commercial ovarian extract, with or without thyroid, was given, as the mental symptoms had developed after the menopause and it was thought that the withdrawal of the ovarian hormone might have had a share in their production. Of these, 8 were affective cases, of whom 5 recovered and 2 were relieved, while 5 were paranoiacs, of whom 1 recovered and 3 were relieved.

Four cases underwent operation: an eroded cervix was scraped in a paranoiac; the uterus was explored for suspected carcinoma in an alcoholic case; the ovaries were removed in a schizophrenic; and an eroded cervix was cauterised in a depressed case. The organic case has died and the other three are as before. In some of the cases previously mentioned, consent for operation was withheld. Moorhead [13] and FitzGibbon [14] have recently published a case in which grave mental symptoms at the menopause were cleared up by the removal of the uterus in which there was "chronic bacterial infection." FitzGibbon is reported [14] as believing that many menopausal phenomena can be cured by the removal of the uterus even when no infection is present. He advocates hysterectomy in all menopausal cases where the uterus is enlarged and the symptoms severe. In our opinion, however, operation should only be undertaken for a demonstrable pelvic lesion.

CONCLUSIONS

Although the results of our investigation are to some extent negative, we do not think that they lack importance. In our series of mental patients, menstrual abnormalities are more common than in the control series of sane gynæcological patients, but we have found no considerable tendency in the mental cases to menstrual irregularity. We thus differ from many published and popular opinions. In our series, menstruation only caused exacerbation of mental symptoms in 19 per cent. Gynæcological treatment, whether endocrinal or operative, was not markedly successful.

We wish to acknowledge our appreciation of the constant help and encouragement which we have received in this work from Dr. E. Goodall, of Hove, lately medical superintendent of the Cardiff City Mental Hospital.

(*References at foot of opposite column*)

RADIOGRAPHIC FINDINGS IN THE LATE MONTHS OF PREGNANCY

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Since the terminal years of last century the X ray examination of obstetric cases has been practised with increasing frequency, and now some tend to accord to the X ray findings greater importance than is their due. Their usefulness, in my opinion, is confined to the occasional instance where obesity of abdominal wall, rigidity or density of uterine musculature, anterior position of a thick placenta, or excess of liquor amnii renders palpation difficult; to the

FIG. 1.—Radiogram showing anencephaly.

breech presentation in which, version having failed, the question of leg extension is raised; to the determination of relative positions in multiple pregnancy; and to the confirmation of fœtal deformity.

In cases of disproportion between fœtal head and maternal pelvis there is no place for X rays. Fixing of the head does away with the necessity for radiography, while a head floating is liable to give misleading shadows often suggesting a disproportion which does not exist. Again, X ray plates cannot give any impression of head consistence or of the degree of moulding which may be expected. Many unnecessary Cæsarean sections have been performed on the strength of "X ray disproportion." There is

(*Continued from previous column*)

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only one method of forming a true prognosis in cases of disproportion, and that is by means of the Glasgow school's clinical estimation and grouping.*

Two photographs are reproduced here—Fig. 1 is an example of anencephalus taken at term, while Fig. 2 shows a breech presentation in which version had failed owing to extension of legs. These photographs were taken to confirm clinical suspicions, and each proved valuable in indicating the appropriate treatment.

The anencephalic was the second case of its kind encountered within the short period of a month. In the earlier example the child had survived for ten days, and the distress caused to parents and attendants was still all too vivid, in my mind, when this further instance was diagnosed. The position was

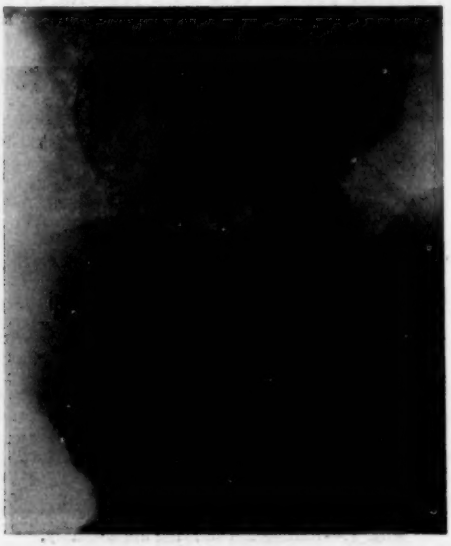

FIG. 2.—Radiogram in a case of breech presentation showing apparent enlargement of the fœtal head.

explained to, and discussed with, the parents, and with the father's concurrence an unusual line of delivery was practised. The membranes were kept intact until the cervix was dilated to the width of three fingers, when bipolar version was performed and a foot was pulled down, along with a loop of cord. A strong clamp was applied to the cord, and left there till nature completed the resultant stillbirth. I took the view that the procedure was as justifiable as perforation of an hydrocephalic head.

The condition seen in Fig. 2, a breech with extended legs, is, of course, much commoner than the one just described. Frequently, let it be mentioned in passing, the arms are also extended right above the head, so that the old teaching that extended arms are always the result of pulling on the breech is not always true. These cases of extended legs frequently defy version, particularly in primigravidæ; and when the first few gentle efforts prove unavailing, it is advisable to desist, to consider the case as a breech, and to prepare for its delivery as such. Stillbirth and placental separation are by no means unknown after forceful attempts at external version. The correct form of treatment should, I think, be the maintenance of intact membranes until sufficient cervical dilatation is obtained to permit of the introduction of a hand to flex a leg and bring down a foot. This manœuvre leaves a good conical, cervical, and vaginal dilator, and, which is much more important, obviates impaction of the breech. Light traction is applied to the presenting foot, and labour is permitted to continue until the buttocks present at the vulva, when delivery is completed.

Fig. 2 has, however, an importance apart from prognosis. Its history is of interest, demonstrating as it does the danger of deducing disproportion from X ray findings. When seen shortly before term, the case was an easily diagnosed breech presentation of normal size. Version, however, failed, and a photograph taken subsequently showed the suspected extension of legs. The plate was forwarded, with the patient's antenatal dossier, to the hospital in which the confinement was to be conducted, and was there interpreted as showing hydrocephalus. The parents were summoned, and informed that the unborn child was deformed and would, if not stillborn, be a congenital imbecile. Further opinion was sought, and the patient was admitted to an obstetric hospital where greater facilities for complicated childbirth were available. Fortunately nature intervened; labour began, and a perfectly normal child was delivered spontaneously.

Unless one has knowledge of this "X ray disproportion" in obstetric radiograms, it can be very misleading. When the head is in the pelvic brim, and fixed, distortion of shadow is practically nil; but immediately a head is free there is a possibility of an abnormally large shadow being cast. When the head is in the fundus, and has a large arc of antero-posterior movement, this illusion is especially likely to appear.

The factors which contribute to the formation of a large and deceptive head shadow are those which permit the fœtal head to move freely in an antero-posterior arc, and those which tend to maintain the head near the anterior uterine wall, and consequently nearer to the tube, when the patient is being screened in the dorsal position. The prime factor, then, is head mobility, and this may produce apparent disproportion in any position above the pelvic brim, but is more likely when the head has the roomy fundus in which to move. All causes of non-fixation of head contribute to this: contracted pelvis, hydrocephalus in minor degree, low-set placenta, hydramnios, &c. The other factor of importance is the throwing forward of the head towards the anterior uterine wall. This may be produced by the fœtal back lying posteriorly, by the presence of the placenta on the posterior wall of the uterus, by posteriorly placed tumours, by a twin, or by marked lumbar curvature.

This last cause deserves a word for itself. The degree to which lumbar curvature is increased as term approaches is variable. In some patients it is not appreciably increased, others show it markedly. The first group, and some of the second, where a big degree of lumbar elasticity is present, can lie flat and comfortably in the dorsal position while plates are taken, but not a few of the second group have a marked non-elastic curvature and simply cannot assume a flat dorsal position. In such cases the fœtal head is thrown well up towards the tube.

The obvious conclusion to be reached from experience of this "X ray disproportion" is a refusal to accept apparent disproportion in a radiogram in the absence of confirmatory findings by clinical examination. Confirmatory antero-posterior and lateral plates are required if doubt arises.

* The method was first described by Dr. David Shannon in a paper, Pelvimetry as an Index to Treatment, read to the Edinburgh Obstetrical Society, and published in their Transactions in 1920–21.

IMMUNISATION OF TUBERCULOUS CHILDREN AGAINST DIPHTHERIA WITH FORMOL TOXOID

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In a recent paper [1] (O'Brien and Parish, 1932) high immunity was reported following the use of unconcentrated undiluted formol toxoids (F.T.) of high potency (Lf. 28–36 per c.cm.). These preparations were somewhat more liable to cause reactions than toxoid-antitoxin mixtures (T.A.M.) or toxoid-antitoxin floccules (T.A.F.), but sensitive individuals could be detected in advance by the use of the Moloney test (the intradermal injection of diluted formol toxoid) and immunised with small doses of toxoid or preferably with T.A.F.

We were recently asked to immunise children suffering from surgical tuberculosis and other conditions in the Royal National Orthopædic Hospital, Stanmore, Middlesex, and the Alexandra Hospital, Swanley, Kent, in which cases of diphtheria had occurred. It was felt that something should be done if possible to control the outbreaks by modern methods of immunisation. In the past the fear of reactions has restricted the use of toxoid, more especially amongst tuberculous children in whom it is imperative to avoid the risk of the febrile responses to injection which are known to occur in a small percentage of subjects immunised with toxoid. It was thought that this risk could be avoided by the use of the Moloney test and by the immunisation of Moloney-positive reactors with T.A.F.—apparently the mildest diphtheria prophylactic known. Moloney tests were accordingly carried out at the same time as the Schick tests, and were recorded as follows: M+++ or "definite" indicated a large zone of redness with palpable thickening of the skin; M++ or "mild" was an area of bright hyperæmia of more than 10 mm. in diameter, with very slight induration; where induration was absent, a very faint flush irrespective of its diameter, or a bright reaction of less than 10 mm., was classified as M+ or "faint." Children showing these reactions were considered Moloney-positive, and all others negative. It was decided to immunise the most delicate children with T.A.F., and all other children with F.T., if Schick-positive, Moloney-negative, or with T.A.F., if Schick-positive, Moloney-positive. (In the group to be immunised with T.A.F. were included the M+ or "faint" reactors, who, in a normal population, do not suffer from troublesome symptoms, either local or general, after the injection of toxoid, and would therefore be considered Moloney-negative reactors suitable for immunisation with toxoid.) The ages of the children ranged from 2–16 years, the average being about 10 years.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL

One hundred and fifty-one cases were Schick-tested of whom 73 were positive and 78 negative (immunity rate = 52 per cent.). Thirteen Schick-positive reactors and 16 negative reactors were Moloney-positive; the only M+++ ("definite") reactors were in the Schick-negative group. The 60 Schick-positive, Moloney-negative subjects received three injections of 1·0 c.cm. of undiluted formol toxoid at weekly or fortnightly intervals, and the 13 Schick-positive, Moloney-positive subjects a similar course of T.A.F. No reactions other than "very mild local" followed the immunising injections.

Sixty-three of the 73 Schick-positive children were Schick-tested again within seven weeks of the original Schick test—i.e., within two to four weeks of the third immunising injection. Forty-eight (96 per cent.) of 50 children immunised with toxoid were Schick-negative; 10 (77 per cent.) of the 13 children who received a similar course of T.A.F. were completely Schick-negative, and 2 of the remainder showed much reduced reactions but were recorded as "positive." With the exception of a very few patients who were positive on admission but returned home before the second Schick tests were performed, all the Schick-positive group finally gave a Schick-negative response.

The work which we began is being continued by the medical superintendent and his staff. So far no troublesome reactions have ensued during immunisation, nor has there been any evidence of the reactivation of quiescent tuberculosis. There have been no further cases of diphtheria in the hospital.

ALEXANDRA HOSPITAL

Seventy-seven children were Schick-tested, of whom 57 were positive and 20 negative (immunity rate = 26 per cent.). The immunity rate was higher in the tuberculous (34 per cent. of 47 children tested) than in the non-tuberculous group (13 per cent. of 30 children), and there were also higher percentages of Schick-pseudo and Moloney-positive reactions in the former group. Details of the Moloney reactions were as follows:—

Group.	Schick reaction.	Moloney reaction.			
		Nil.	Faint.	Mild.	Definite.
Tuberculous 47	Positive, 31	21	7	2	1
	Negative, 16 (=34%)	7	3	3	3
Non-tuberculous 30	Positive, 26	22	3	1	0
	Negative, 4 (=13%)	3	0	0	1

It will be seen that 4 of 5 M+++ ("definite") reactors were in the Schick-negative group.

The prophylactics used were F.T. and T.A.F., and, since the temperatures of some of the children were not normal, extreme care was taken to avoid reactions. Very delicate children, whether Moloney-positive or negative, were therefore immunised with T.A.F., as were all the other members of the Schick-positive, Moloney-positive group. The usual course was three injections of 1·0 c.cm. at intervals of two weeks, but in many instances a preliminary injection of 0·1 c.cm. was given as an additional safeguard. By these means unpleasant symptoms were entirely avoided, for only the mildest local reactions occurred.

Second Schick tests were carried out on 43 children (22 tuberculous and 21 non-tuberculous) who were presented two and a half weeks after the final immunising injection. Nineteen had been immunised with toxoid and 24 with T.A.F. The result was eminently satisfactory, for all were Schick-negative except one who had received injections of toxoid and gave a faint positive reaction. Several of the absentees were tested subsequently, and in every instance were found to be Schick-negative. No further cases of diphtheria have been reported.

DISCUSSION

Formol toxoid (anatoxin) has recently been recommended for healthy children by the Ministry of Health.[2] Its high immunising value has long been known, but its general adoption has been delayed by the fear of the reactions it is apt to cause in

sensitive individuals. Moloney and Fraser [3] in 1927 devised a procedure by which the trouble which may be caused by this prophylactic can be avoided. By the intradermal injection of a very small amount of toxoid, people liable to suffer troublesome local and general reactions during immunisation can be detected; they can in nearly every instance be immunised without unpleasant symptoms with T.A.F., or with repeated very small doses of toxoid. Our conviction is that the use of the Moloney test is imperative when it is proposed to inject tuberculous children with potent formol toxoid, for here it is essential to avoid the febrile reactions which may follow the use of toxoid. With this reservation we would subscribe to the views of the conference of experts [4] (held in London in June, 1931, under the auspices of the League of Nations) that the immunisation of tuberculous children with the most active prophylactics is desirable. We think that here the injection of undiluted formol toxoid is a reasonably safe procedure if in the first instance the Moloney test is properly carried out and interpreted; Schick-positive, Moloney-negative children can be immunised with F.T., and Schick-positive, Moloney-positive children with T.A.F., which has high immunising power with very low tendency to cause reactions. (An exception may well be made in the case of the most delicate children, in whom the Moloney test can be omitted, and immunisation commenced with a reduced dose—such as 0·1 c.cm. of the mildest prophylactic at present available, viz., toxoid-antitoxin floccules, T.A.F.)

SUMMARY

Schick-positive children suffering from surgical tuberculosis and other conditions in two orthopædic hospitals were successfully and rapidly immunised against diphtheria. The Moloney test (intradermal diluted toxoid test) was used to detect children sensitive to toxoid. Very delicate children were immunised with toxoid-antitoxin floccules (T.A.F.) irrespective of their Moloney response, but all others received formol toxoid (F.T.) if Schick-positive, Moloney-negative, and T.A.F. if Schick-positive, Moloney-positive. The usual course was three injections of 1·0 c.cm., given at fortnightly intervals. No troublesome local or general reactions occurred in any of the children. With formol toxoid, upwards of 96 per cent. were immune within two to four weeks of the third injection.

My thanks are due to Mr. H. J. Seddon, medical superintendent of the Royal National Orthopædic Hospital, and to Mr. A. L. Moreton, medical superintendent of the Alexandra Hospital, and their staffs for their kind coöperation and assistance.

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COST OF MOTOR ACCIDENTS.—Last year the treatment of motor-accident patients cost the Essex County Hospital, Colchester, £1024, of which only £72 was refunded under the Road Traffic Act by the insurance companies which now contend that injured members of contributory funds are not entitled to receive any payment under the Act.—In his evidence last week before the Select Committee of the House of Lords, which is considering the Road Traffic (Compensation for Accidents) Bill, Sir Harold Pink, chairman of the British Hospitals Association, stated that if all road accidents were covered by insurance an additional sum of £128,000 a year would be received by the hospitals from the companies.

THE INCIDENCE OF LARYNGEAL CANCER

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THE increasing incidence of cancer in general, and of cancer at certain sites in particular, has been the subject of a voluminous and, in many instances, a conflicting literature. The apparent increase in its frequency in the lower part of the respiratory tract, especially, has given rise to much discussion, fruitless for the most part, in that many factors have to be considered, none of which can be assessed with accuracy.

It is not the purpose of the present paper to review this subject in detail, but it seems possible that the incidence of cancer in the lower part of the respiratory tract may be to some extent related to that of cancer higher up in the tract; so that a brief preliminary consideration of the frequency of cancer of the lungs and bronchi is necessary in order to comprehend the significance of the figures for cancer of the larynx.

THE PRESENT POSITION

In 1927 Duguid [1] reported an increase in the number of intrathoracic cancers found post mortem in Manchester, and more recently similar increases have been reported by Simpson,[2] Schuster,[3] and Maxwell and Nicholson [4] in London; Faulds,[5] however, has found that there is no evidence of any recent increase in the incidence of lung cancer at the Glasgow Royal Infirmary. Duguid discussed the matter in some detail, and favoured the conclusion that there has been an absolute increase in the incidence of the condition. In 1931 Fried [6] reviewed the literature of the whole subject, and emphasised the numerous factors which operate to render such conclusions fallacious. He regards the evidence for an increased incidence as unconvincing, and states that in his opinion the increase is very likely more apparent than real. In the present state of our knowledge it is impossible to dissent from this view, although it must be borne in mind that the available evidence is equally inconclusive in either direction, and that any opinion expressed on this subject is of necessity tentative. Fried, however, is not entirely unbiased in his discussion, for he stresses the fact that cancer is becoming more common largely because the mean length of life is considerably greater now than formerly, so that a larger proportion of the population reaches the "cancer age"; this is undoubtedly true, and will account in part for an increase in the incidence of cancer in general, but it is difficult to understand how this can account for an increase in the incidence of cancer of a particular organ, out of proportion to the increase in malignant disease in general. Thus the absolute figures for cancer of any part of the body convey very little information, and it is only by a study of the relation between the number of cancers originating in a given site to the total number of cancers of all varieties, over a period of many years, that we can truly appreciate any alteration in the incidence of one particular type. It is clear that the increase in the mean length of life must affect the total number of cancers of all sites, but there is no reason to expect that it would alter their relative proportions; so that this argument may not

be fairly adduced as a point against the possibility of an increase in the incidence of cancer of the bronchi and lungs.

A most interesting and important point has been raised by several writers, notably by Wells [7] and Renaut.[8] These point out that while cancer of most of the internal organs of the body appears to be increasing in frequency, the incidence of superficial cancers is found to be more or less unaltered, and they naturally regard this as the result of the improvement in the diagnosis of deeply seated disease which has undoubtedly occurred within the last few years. This point of view is entirely justifiable and doubtless correct, but it must be realised that it may actually lead us away from the truth by obscuring any actual increase which may have occurred in the incidence of deeply seated cancer. In fact, most of the arguments which have been employed to cast doubt on the alleged increase in frequency of intrathoracic cancer may themselves be as fallacious as those advanced in support of this hypothesis; hence the impossibility of reaching a definite conclusion. In addition, it must be noted that the figures which Renaut quotes for superficial cancer refer to comparatively small numbers of cases, and it does not seem safe to draw any conclusion of importance from them.

RELEVANCE OF NATIONAL STATISTICS

In 1928 Maxwell and Nicholson [4] advanced the suggestion that, assuming that there has been an actual increase in the incidence of intrathoracic cancer, and assuming Duguid's explanation to be correct—namely, that this is in part due to the inhalation of irritant substances from the atmosphere, such as petrol and oil fumes and coal-tar derivatives—it would be reasonable to expect a coincident increase in the incidence of laryngeal cancer. A consideration of the results of this investigation is the main object of the present paper.

The standard writers on diseases of the larynx, as exemplified by StClair Thomson [9] and Logan Turner,[10] agree in regarding laryngeal cancer as a relatively rare condition. It must be recognised, however, that hospital and post-mortem statistics may be misleading, as only a small proportion of the cases actually die in hospital, even in the special throat hospitals, and conclusions derived from a study of hospital statistics may therefore be unreliable. But in studying cancer of the larynx—and this also applies to cancer of any fairly superficial structure which is readily amenable to clinical examination—hospital statistics controlled by post-mortem examinations are not strictly essential, and indeed a much wider survey of the subject may be achieved by a study of the national incidence of the condition.

Before admitting the statistical significance of figures compiled on such a system, uncontrolled for the most part by post-mortem examinations, it is necessary to consider whether it is safe to accept figures based mainly upon clinical diagnosis alone, and whether any factors may operate to render the conclusions fallacious. It is obvious that the study of deeply seated cancer cannot be carried out in this way. In the first place, there is still a very high percentage of error in the clinical diagnosis, as has been shown by the carefully controlled figures of Kikuth,[11] Staehelin,[12] Simpson,[3] and many others, so that post-mortem examinations are essential before any figures can be accepted. In addition, both in regard to intrathoracic and to abdominal cancer, there have been such remarkable diagnostic advances in the last 20 years, both as a result of the introduction of radio-diagnosis and of the increased surgical accessibility of the deeper structures of the body, that many conditions are to-day commonly diagnosed correctly which were formerly unrecognised, with the result that the clinician of to-day receives a different impression of the relative incidence of these conditions as compared with his counterpart of 20 years ago.

These arguments, however, do not operate in the same way against the acceptance of figures for superficial cancer, in which group laryngeal cancer may fairly be included.

Cancer of the larynx is a disease which is so characteristic that, in the terminal stages at least, the diagnosis is rarely in doubt, so that the question of misdiagnosis of the condition, as a cause of death, may be practically ruled out. There have, of course, been great advances in early diagnosis which are of tremendous value to the laryngologist in affording opportunities for early treatment, the effect of which, by increasing the chances of a permanent cure, should operate in the direction of reducing the apparent incidence of the condition, when considered solely as a cause of death; but probably the effect of this factor is still not sufficient appreciably to influence the figures. Moreover, the late stages of the disease, characterised by such urgent and distressing symptoms as irritating husky cough, loss of voice, dyspnœa, and dysphagia, possibly with enlargement of the cervical lymphatic glands, are sufficiently distinctive to compel a correct diagnosis by the medical attendant, quite apart from the expression of an expert opinion by a trained laryngologist.

For these reasons we claim that the national figures for England and Wales, as published by the Registrar-General, are substantially accurate as far as laryngeal cancer is concerned. We propose to call attention to the alteration which has taken place in the incidence of the condition during the last 20 years, and to compare these figures with the corresponding statistics for deaths occurring from two other easily diagnosable and practically superficial conditions—namely, cancer of the tongue and of the œsophagus.

Table showing the Incidence of Malignant Disease of the Larynx, Tongue, and Œsophagus in England and Wales from 1911 to 1930

Year	Total deaths from malignant disease.	Total deaths from cancer of—			Percentage of all cases of malignant disease.		
		Larynx.	Œsophagus.	Tongue.	Larynx.	Œsophagus.	Tongue
1911	35,902	462	1,454	978	1·29	4·05	2·72
1912	37,323	530	1,560	1,007	1·42	4·18	2·70
1913	38,939	538	1,585	1,066	1·38	4·07	2·74
1914	39,517	589	1,530	1,031	1·48	3·87	2·61
1915	39,847	552	1,579	1,034	1·39	3·96	2·60
1916	40,630	640	1,559	1,083	1·58	3·84	2·67
1917	41,158	644	1,565	1,195	1·57	3·78	2·90
1918	41,227	707	1,630	1,242	1·72	3·95	3·01
1919	42,144	737	1,705	1,241	1·75	4·05	2·94
1920	43,687	796	1,742	1,246	1·82	3·99	2·85
1921	46,022	779	1,907	1,225	1·69	4·14	2·66
1922	46,903	867	1,934	1,209	1·85	4·12	2·60
1923	48,668	865	1,981	1,209	1·78	4·07	2·49
1924	50,389	922	2,082	1,238	1·83	4·13	2·46
1925	51,939	992	2,186	1,293	1·91	4·21	2·49
1926	53,220	1,043	2,145	1,193	1·96	4·03	2·24
1927	54,078	1,010	2,076	1,304	1·87	3·84	2·41
1928	56,253	1,058	2,244	1,314	1·88	3·99	2·33
1929	56,896	1,061	2,210	1,228	1·86	3·88	2·16
1930	57,883	1,117	2,260	1,210	1·92	3·90	2·09

The figures which are quoted are taken from the tables published in the Registrar-General's annual reports, and they are reproduced in full in the accompanying Table in order to show the remarkable absence of gross variations in the yearly incidence of these conditions. The period selected for consideration is the 20 years from 1911 to 1930, and thus

includes the period during which lung cancer is said to have shown its dramatic increase.

MORTALITY-RATES COMPARED

In the first place, it may be noted that cancer of the larynx, a supposedly rare disease, is in reality about half as common as œsophageal cancer, which is usually considered to be one of the commoner varieties of malignant disease, and, secondly, it is apparent that the tongue and the larynx are now equally common as the sites of primary cancer.

A study of the variations in incidence in these three groups during the last 20 years reveals certain significant points. In the first place, the absolute figures for the number of cancers arising in any given site reveal nothing, for it can be seen that there has been a tremendous increase in the annual number of deaths from cancer in this period. The number of cases has, without exception, shown an increase year by year, and in 1930 exceeded the figure for 1911 by almost 22,000, an increase of approximately 61 per cent. To what extent this merely reflects our increased powers of diagnosis it is quite impossible to determine, but it would seem highly improbable that the latter factor can account for anything like the whole of the apparent increase. Be this as it may, the primary sites under consideration are not affected by this argument, for it may be safely accepted that there has been no advance in the diagnosis of fatal cases of these types during the period under discussion. Indeed the very fact that more cases of deeply seated cancer are being correctly diagnosed, by increasing the total number of cases, should have the effect of reducing the proportion of cases of cancer originating in the superficial sites. It is indeed by a study of the relation of the number of cases originating in a given site to the total number of cases of malignant disease that we can gain some information as to the relative changes in the incidence of the various types.

In the present instances we note the following alterations. The number of cases of œsophageal cancer has increased steadily from 1454 in 1911 to 2260 in 1930, and when this increase is compared with the increase of malignant disease in general it is clear that the proportion between the two has remained practically unaltered throughout the whole period; in other words, the real increase in cancer of the œsophagus is no greater than that of cancer in general. The tongue is also seen to have been the site of more primary cancers in 1930 than in 1911, but in this instance the increase has not been so great as the general increase in cancer; whether this be due to a true decrease in incidence, the result perhaps of improvements in the treatment of syphilis, or whether it be the result of advances in surgical treatment with a greater proportion of permanent cures in early cases, cannot be determined with certainty; but there can be no reason to doubt the authenticity of the figures.

The statistics for laryngeal cancer include all cases in which the disease arose in the larynx itself, the pyriform fossa, glottis, epiglottis, post-cricoid region, and trachea. The special sites accounted for only a small percentage of the total, and the great majority of the cases were registered merely as carcinoma of the larynx. A study of the yearly incidence shows that there has been a steady increase in the number of cases reported annually, and that the figure for 1930 is considerably more than twice that for 1911. The proportion of all cancers which arose in the larynx is also seen to have mounted steadily from 1·29 to 1·92 per cent.; not a great, but still a definite, increase, particularly when contrasted with figures for the œsophagus and tongue. There would thus appear to have been a definite increase in the incidence of laryngeal cancer, although the alteration is not nearly so striking as that which is stated in some quarters to have occurred in cancer of the lung. In fact there is a considerable contrast between the two conditions, for it can be seen that there has been a perceptible and steady increase in the figures for laryngeal cancer throughout the whole period under survey, whereas the majority of writers who claim an increase in the incidence of lung cancer have demonstrated a rather abrupt increase which apparently took place between 10 and 15 years ago.

The principal purpose of this paper, indeed, is to contrast the fairly accurate statistics for laryngeal cancer with the vague and often conflicting views, unsupportable by other than clinical and pathological evidence of doubtful value, relating to the incidence of bronchial carcinoma. There appears to be reasonable evidence for the suggestion that laryngeal cancer has definitely increased in frequency during the past 20 years, and consequently it may well be that cancer of the lower part of the respiratory tract has also increased in a more or less similar degree, particularly if the increase be to any extent due to the inhalation of irritant substances.

SUMMARY

In view of the suggestion that malignant disease of the bronchi and lungs is becoming more common, and in view of the many fallacies in the interpretation of the available data, the figures for laryngeal cancer, which are less open to destructive criticism, deserve to be considered in relation to those for malignant disease in other parts of the respiratory tract, especially as there is a possibility that the inhalation of irritant substances may play some part in the genesis of cancer in this system.

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CONGENITAL ATRESIA OF THE BILE-DUCTS

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WE have recently had the opportunity of studying an unusual case of atresia of the bile-ducts which was distinguished by two important clinical features—namely, its occurrence in a binovular twin, and the survival of the child to 15 months old.

A girl twin (the other twin a perfectly healthy boy) was admitted to University College Hospital when 5 months old with the following history:—

About six or seven days after birth the child showed jaundice; this persisted, although varying slightly in intensity from time to time. Normal meconium was

passed in the first few days; later the stools gradually became pale and continued so throughout. The child had two mild attacks of diarrhœa but was usually constipated. The urine was dark and highly coloured throughout. The umbilicus was infected for a few days after normal separation of the cord on the sixth day; the infection was only slight, was accompanied by no general disturbance, and responded quickly to simple treatment.

The child was deeply jaundiced and her general condition was fairly good.

Her weight was 12 lb. 9 oz., and she took her feeds well. The temperature varied between 98° and 99° F., and the pulse-rate between 120 and 140; the blood pressure was 60 mm. Hg. There was a small nævus on the left ear, and a lipoma over the right temporal area; she also had a small umbilical hernia. There was no evidence of serious congenital abnormality. No hæmorrhages were present.

The liver edge was palpable about 1½ in. below the costal margin and was so hard that students frequently mistook it for the rib edge. The spleen was also enlarged to about one finger's breadth below the costal margin. No ascites could be detected.

COURSE AND TERMINATION OF ILLNESS

Apart from a mild attack of diarrhœa and vomiting progress was uneventful, the child gaining weight slowly and remaining playful and attractive. About three months after admission the liver surface gradually became irregular to palpation, though it remained at about the same level. The spleen was definitely larger. About this time an apical systolic murmur was detected and a thrill was palpable just above the umbilicus, accompanied by a loud blowing murmur. At this time also the abdomen gradually became distended, and free fluid was definitely present when the child was 12½ months old. At the same time the nail beds of the fingers and toes became shiny, and clubbing appeared.

During the next month the ascites increased very slightly and the child became a little more irritable. She had a slight attack of bleeding from the lips, but not from the gums or any other mucous surface. The lip bleeding stopped in a day or two and never recurred. The liver had enlarged meanwhile, and was now definitely coarsely granular.

The general condition of the child remained surprisingly good, and she never lost much weight. At her first birthday her weight was 13 lb. 2 oz. Her highest recorded weight was 14 lb. 1 oz. About two months later the ascites suddenly increased and the child became more distressed. A paracentesis was done and a pint of clear bile-stained fluid withdrawn. After this the liver was more easily palpable, though definitely smaller than before. The spleen remained approximately the same size. From this time onwards the child became more irritable and lost weight. The clubbing of the fingers and toes was more evident, and the ascites increased. A second paracentesis was done, and 2½ pints of clear bile-stained fluid were withdrawn.

Soon after this the abdomen again filled with fluid and marked œdema of the legs, lower abdomen, and both labia developed. A few scattered purpuric spots appeared on the chest wall and were the only hæmorrhagic signs observed throughout, except the slight lip bleeding previously noted. A further paracentesis was done, but the child died quietly at the age of 15 months.

PATHOLOGICAL INVESTIGATIONS

The following were the main clinical pathological investigations carried out:—

Stools.—Repeated naked-eye and chemical examination failed to show any trace of bile-pigments.

Urine.—Bile-pigments were constantly present and bile salts absent.

Blood.—At the age of 6 months the count was as follows:—

Red cells	3,760,000	Polymorph.	32%
White cells	10,200	Lymphocytes	63%
Hæmoglobin	70%	Mononuclears	3%
Colour-index	0·93	Eosinophils	2%

At one year it was:—

Red cells	3,160,000	Polymorph.	46%
White cells	3,600	Lympho.	46%
Hb.	28%*	Monocl.	6%
C.I.	0·44	Eosino.	2%

* Value for hæmoglobin approximate; much bile-pigment present.

The immediate direct van den Bergh reaction positive; the indirect reaction negative. The Wassermann reaction of both child and mother were negative. The coagulation time was two minutes (Dale and Laidlaw's method).

Peritoneal fluid.—Van den Bergh reaction; immediate direct reaction positive; indirect reaction 2·7 units. A few red blood-cells, lymphocytes, and endothelial cells present. Protein 0·7 per cent.

AUTOPSY

The post-mortem was carried out 26 hours after death. The body was that of an emaciated child and was deeply jaundiced. The abdomen was very protuberant and the abdominal wall very thin. The general muscular development was exceedingly poor. On the front of the chest there were a number of small punctate hæmorrhages. There was clubbing of the fingers and toes.

Liver.—Weight 248 g. (the normal for the age being about 320 g. by Vierordt's tables). The greater part of the external surface of the liver was dark green, with paler green arborescent strands showing through the capsule. These paler strands were rather depressed below the general surface, while the dark green intervening areas projected slightly as rounded nodules which varied in diameter from 1 to 10 mm. The umbilical vein in the falciform ligament was large and patent. The portal vein was normal. A horizontal section through the liver showed a large area of pale green fibrous tissue close to the hilum, from which pale green fibrous strands, similar to those seen through the capsule, radiated in an irregular manner toward the periphery. There were several widely dilated spaces containing almost solid dark green bile in this central mass of fibrous tissue. There was slight general thickening of the liver capsule. The gall-bladder was small but patent, and contained about 0·5 c.cm. of thin, slightly mucous, almost colourless fluid. The wall of the gall-bladder was rather thicker then usual. Careful dissection of the hilum exposed condensations of fibrous tissue corresponding in position with the extrahepatic, cystic, and common bile-ducts. None of these was patent, and short lengths were removed for histological examination to determine whether any duct epithelial cells were present.

The spleen weighed 115 g. (the normal for the age about 26 g. by Vierordt's tables). The rather thickened capsule of the spleen was adherent to the liver, the diaphragm, and the abdominal wall. On section the cut surface was bright red and very firm. The Malpighian bodies were discernible, but not prominent.

Other organs.—There was general bile-staining of the thoracic and abdominal organs, but neither the white matter nor the basal ganglia of the brain was affected. There was a little collapse and hypostatic congestion of the posterior parts of both lower lobes of the lungs. The right middle ear contained a small quantity of pus. There was some hyperæmia of the mucous membrane of the duodenum and upper part of the jejunum. The large intestine contained formed white fæcal matter. There was about 1000 c.cm. of clear reddish-brown fluid in the peritoneal cavity. No abnormalities, congenital or acquired, were found in any of the other organs.

HISTOLOGICAL EXAMINATION

The pale central area near the hilum of the liver was composed almost entirely of fibrous tissue containing coarse, dense, collagen fibres with practically no remains of the original liver lobules. Embedded in this fibrous tissue were large numbers of small bile-ducts, most of which contained masses of dark green bile. The epithelium lining these ducts was flatter than normal, but it was not otherwise evident that the ducts themselves were distended. In several places there were spaces in the connective tissue readily visible to the naked eye and containing masses of dark green bile. These spaces were not lined by epithelium, their ill-defined border suggesting that the bile had escaped by rupture of ducts. There was also a diffuse infiltration of the surrounding connective tissue with many small granules of bile-pigment. Lymphocytes but no polymorphonuclear leucocytes were present in the connective tissue.

In the more peripheral parts of the liver the lobules were irregularly broken up by large bands of dense fibrous tissue, containing a ramifying system of slender bile-ducts. Some of these ducts contained bile, but in places small quantities of similarly deeply coloured bile could be seen free in spaces in the connective tissues. Some bile could also be seen in intralobular bile canaliculi. The Kupffer cells also contained bile-pigment. The liver lobules were variable in size, some being very large and others undergoing atrophy. Section of the fibrous strands in the positions normally occupied by the common, cystic, and extrahepatic bile-ducts showed many small capillaries lying in connective tissue but no signs of epithelial cells either free or lining a duct.

Spleen.—There was slight irregular thickening of the capsule of the spleen. The Malpighian bodies were normal.

There was about the usual quantity of red blood corpuscles in the pulp spaces. The trabeculæ were of normal thickness, and there was no fibrosis.

DISCUSSION

There are two principal theories upon the ætiology of the condition under review, and it is proposed to discuss the above case in its relation to them. (For general discussion see Rolleston and McNee; Lavenson.)

(1) That there is a congenital malformation of the biliary tracts as the primary factor, and that later a secondary infection leads to cirrhosis. This congenital malformation may be either :—

(*a*) A failure of the biliary tract to canalise.
(*b*) A complete or partial obstruction of the tract. A partial obstruction allows stagnation and catarrhal blocking of the ducts with a secondary infection subsequently causing an obliterative cholangitis with later a liver cirrhosis.

(2) That there is a primary toxic factor producing cirrhosis with a subsequent obliteration of the bile-ducts. This primary cirrhosis is stated to be either :—

(*a*) A congenital or fœtal cirrhosis.
(*b*) A toxic cirrhosis following a maternal toxæmia.

From the clinical history of the case there appears to have been some definite obstructive factor present when the child was born. The absence of jaundice at birth and the presence of normal meconium during the first few days have been regarded as implying that the biliary tract in such cases is at least partially patent at birth. It should be pointed out, however, that bile-pigment is not present in the biliary secretions until the fifth or sixth month of fœtal life (Ylppö), and from then until birth only in small amounts. After birth, bile is produced in larger quantity, but should its outflow be obstructed by impervious ducts, jaundice gradually develops. In other words, the delayed onset of the jaundice coincides with the much augmented production of bile in the first few days after birth, and does not necessarily imply that there is a postnatal closure of the main biliary tract.

The clinical progress of the case also favours the view that biliary obstruction preceded the cirrhosis. At the onset the liver was enlarged and smooth and there was no evidence of portal obstruction. It was only after some months that the liver became irregular to palpation and clinically resembled a cirrhotic liver. Similarly the portal circulation gradually became obstructed, and the ascites and clubbing of the fingers and toes (cf. Hanot's type of cirrhosis) were comparatively late in developing. The clinical progress was thus one of an increasing cirrhosis which set in long after the first signs of jaundice. However, the excretion of normally coloured meconium indicates that the bile passages must have been patent at some period of fœtal life between the sixth month and birth.

This view is supported by the histological findings. The presence of conspicuous masses of concentrated bile both in the dilated ducts and lying freely in connective tissue spaces, presumably as a result of the rupture of such overfilled ducts, points to the obstruction first forming in the larger biliary passages. Further, the multiplication of the smaller bile-ducts and the irregular areas of hyperplasia and atrophy of the liver cells resemble changes observed in the livers of animals whose main bile-ducts have been artificially obstructed for several weeks. (For a full discussion of these changes together with complete bibliography, see Cameron and Oakley.)

Further light on the ætiology of the case is thrown by the fact that the child was one of twins. This condition in twins has been previously recorded by Feldman and Lawson, and by Wallgren. Rolleston and McNee suggest that the mixed cirrhosis results from the toxins reaching the liver of the fœtus by way of the placenta through the hepatic and portal circulations. The appearance of the condition in a twin, with the other twin healthy (as in Feldman and Lawson's and Wallgren's cases and in our own) appears incompatible with this theory of maternal toxæmia, for it seems highly improbable that only one of the twins should have been injured by a toxin that presumably circulated through both.

There still remain some noteworthy clinical features. The first and most interesting of these is the age to which the child lived. Moreover, until the onset of ascites about two and a half months before her death, she was always happy, playful, and contented. In Thomson's series of 49 cases, two lived to the eighth month, and in those collected later by Lavenson, totalling 62, three lived to the eighth month and one to the eleventh month. We have not found any case reported that has survived as long as 15 months. The presence of a thrill and murmur just above the umbilicus may be accounted for by the patent umbilical vein. The clubbing of the fingers and toes has been described in connexion with Hanot's type of biliary cirrhosis, and is presumably a vascular phenomenon. We can find no reference to it in other reported cases.

We are indebted to Dr. W. J. Pearson for permission to publish the clinical findings on this case, and for his help and criticism.

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Clinical and Laboratory Notes

A CASE OF AGRANULOCYTOSIS

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THE term neutropenia might be preferred to agranulocytosis in an attempt to avoid confusion in nomenclature, since the so-called Schultz [1] syndrome, described as agranulocytic angina, is frequently referred to as agranulocytosis, as if this were the only cause for the blood state. Schultz's patients were all women, the illness was of acute onset with severe prostration, jaundice, and ulceration of the mouth and throat: the blood picture was one of leucopenia with considerable decrease or entire absence of the granular cells; the erythrocytes and platelets were normal. Death from pneumonia was invariable.

Later observers recorded instances in males, and subsequently, examples of recovery were published, the first of which was reported by Lauter [2] in 1924. With the subsequent appearance of a considerable number of cases, it became evident that although some of the symptoms and signs originally reported were generally present, the only finding common to all is the conspicuous diminution of the granulocytes in the peripheral blood stream.

Whatever the cause of the agranulocytosis, the condition is apparently due to physiological paralysis of that portion of the bone-marrow which is related to the polymorphonuclear cells. Although the distinction between deficient production and excessive destruction of the granulocytes is not clinically simple, and whilst it is arguable that infection and toxicity may be the cause of the bone-marrow impairment, it is now generally held that the lack of these cells is responsible for the fever, prostration, and the mental and physical collapse which are usually present, and that their contribution to immunity and resistance to infection is not only important but essential to safety, their absence inviting invasion into the tissues of one or more of the ever-present bacterial flora whose natural habitat is the mucosa of the digestive tract.

It is now accepted that the necrotic lesions familiar in cases of agranulocytic angina are secondary to depression of the granulopoietic function of the marrow. Roberts and Kracke [3] publish an example which "affords evidence if not proof that the bone-marrow loses its power to make granulocytes for some days before the development of sepsis." They state that the life of a granulocyte is normally three days, so that this type of cell will disappear completely from the blood should the red marrow cease manufacturing them for longer than three days. "We have evidence," they add, "that the mere loss of the granulocytes for seven days is incompatible with life." Whatever views as to the genesis of the granulocytes and even upon the function of these cells may be derived from the publication of one case, I feel at least in a position to substitute for the statement of Roberts and Kracke that there is evidence that life is compatible with the complete absence of granulocytes from the peripheral circulation for at least 15 days.

History.—The patient, a lady of 60, was first seen on Jan. 22nd, 1933. Her illness was by that date of some three weeks' duration with gastro-intestinal symptoms, including irregular attacks of abdominal pain and diarrhœa with occasional vomiting. A diagnosis of gastro-intestinal influenza had been made. Whether accurately or no, she was stated to have been apyrexial throughout the illness. At any rate, on the evening of Jan. 22nd her temperature was 100·2° F., her pulse-rate 108, and respirations were 24; and during the whole of the following day the temperature was never below 100·4° F., rising at midnight to 104·8° F. with a rigor.

Investigations.—As diarrhœa had been the most prominent symptom, attention was first directed to the stools, which were found to contain much mucus but no blood or pus. *Bacillus coli* predominated in film and culture.

A blood examination on Jan. 24th showed erythrocytes, 4,400,000 per c.mm.; hæmoglobin, 75 per cent.; leucocytes 6500, polymorphs 71 per cent., lymphocytes 25 per cent., hyaline cells 3 per cent. A blood culture was sterile, all agglutination tests to T.A.B., Gaertner's bacillus, and *Brucella abortus* were negative in all dilutions. The urine contained the merest trace of albumin and a few hyaline casts; no pus, blood, or organisms. No physical signs were discovered in the chest or abdomen, except tenderness in the right subcostal region and a complaint of abdominal pain in the epigastrium. The mouth and throat were completely free from any appearance of sepsis.

Course of illness.—Treatment was directed solely to the alimentary canal with restricted diet and intestinal lavage. The temperature fell, and between Jan. 24th and 29th was never higher than 99° F., but on Jan. 31st a sudden rise to 103·8° F. occurred with a rigor, encouraging a blood examination at the time of the pyrexia. This examination revealed the unexpected result: leucocytes 4800 per c.mm., lymphocytes 88 per cent., monocytes 11 per cent., myelocytes 1 per cent. The most exacting search failed to identify a solitary granulocyte.

From Jan. 31st to Feb. 16th the temperature was continuously raised above 100° F., with, on three occasions, a rise to 105° F. accompanied by rigors. The cardiac rate varied concomitantly with the temperature, but was usually 100 to 104. The blood was examined daily, the total leucocyte count fluctuated between 4800 and 10,500, the lymphocytes between 80 per cent. and 98 per cent., but invariably agranulocytosis was complete. The hæmoglobin and platelet count remained substantially unaltered.

The only symptom of which complaint was made was dysphagia, for which radiological examination of the œsophagus and stomach was undertaken with negative results. The chest was also radiographed together with the ribs and long bones, since the possibility had been raised of carcinomatosis of the bone-marrow.

On Feb. 13th a transfusion of 300 c.cm. of citrated blood was given, not so much because of any deterioration in the patient's state—indeed she remained remarkably well notwithstanding the pyrexia—but on the general principle that the absence of granulocytes must be a potential source of grave danger, and that something must be done to stimulate the bone-marrow. On the 15th agranulocytosis was still complete. On Feb. 16th the temperature fell; the fall continued throughout the 17th, and on the 18th it was subnormal, with pulse-rate 80. During the remainder of the observation the temperature never rose above 98·6° F., nor the pulse-rate above 86.

A blood count on Feb. 19th showed leucocytes 10,600, polymorphs 29 per cent., eosinophils 1 per cent., lymphocytes 65 per cent., monocytes 5 per cent. "The polymorphs are in all respects normal." On Feb. 23rd the total leucocytes were 22,000; polymorphs 54 per cent., and lymphocytes 40 per cent. On March 1st leucocytes 12,000, polymorphs 40 per cent., and lymphocytes 58 per cent. On March 8th the hæmoglobin was 85 per cent.; erythrocytes 5,250,000; leucocytes 6600, polymorphs 40 per cent., lymphocytes 58 per cent. On the 31st hæmoglobin, 95 per cent.; erythrocytes, 5,400,000; leucocytes 6600, polymorphs 41 per cent., lymphocytes 54 per cent., monocytes 4 per cent., basophils 1 per cent.

The only further clinical feature to be noted is desquamation of the skin beginning on Feb. 18th in the fingers and extending over the body, with very considerable quantities from the hands, toes, and lower parts of the body until March 18th.

The features to which I think special attention should be drawn are the following:

(1) A condition of complete agranulocytosis persisted for 15 days without the development of sepsis or any more serious manifestations than malaise.

(2) The agranulocytosis, per se, can hardly have been responsible for pyrexia and rigors, although return of these cells to the blood stream accompanied a fall of the temperature to normal. Presumably the pyrexia and agranulocytosis are due to a common infective or toxic cause.

(3) Whilst it is impossible to deny that recovery may have been spontaneous, the dramatic occurrence three days after transfusion encourages the belief that this treatment was responsible. So far as agranulocytic angina is concerned, transfusions have never been of any benefit and doubt has been cast upon the credit to be legitimately attached to any form of specific treatment which appears to have been responsible in cases that have recovered.

(4) The cause of the neutropenia is obscure. Gastro-intestinal symptoms predominated in the prodromal stage. A large variety of substances have been credited with a toxic influence upon the bone-marrow and "influenza" can hardly be rejected. In a leading article in THE LANCET [4] the opinion has been expressed that an agranulocytic diathesis may occur in women who remain in good health but liable to minor infections.

(5) Whilst no similar example of complete neutropenia has hitherto been reported, I cannot believe that this case is unique. Similar cases might easily be missed. My patient was in the happy position of being in circumstances where every necessary investigation was conveniently undertaken, especially the unlimited resources of a skilled pathologist. In less fortunate circumstances the blood count might well have been overlooked and an "unexplained continued fever" would have cleared up either spontaneously or after some form of treatment, which,

like transfusion, provided the necessary stimulus to the bone-marrow.

I must express my gratitude to Dr. Letheby Tidy and Dr. C. R. Box, who saw the patient and gave both reassurance and invaluable advice; and to Dr. R. J. V. Pulvertaft for his unremitting coöperation and his generous expenditure of time.

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A CASE OF HEPATOMEGALY DUE TO VON GIERKE'S DISEASE

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THE following case appears to be another example of von Gierke's "glycogen accumulation disease," such as have already been recorded by Bellingham Smith and O'Flynn [1] and Worster-Drought and Parkes Weber [2] in this country, and by von Gierke [3] and Schall [4] in Germany. So far only seven examples of this disease appear to have been published.

The patient was first seen at the age of 2 years in the out-patient department of the Miller General Hospital on Nov. 24th, 1930. There are two other children alive and well but a third died at the age of 5 months "with vomiting and a big stomach." Following an attack of bronchitis three days previously, the child had become slightly jaundiced, with white motions and a dark orange-coloured urine. When seen on the seventh day of this the obstructive jaundice was passing off, but her liver was noticed to be extremely large, the lower border reaching half an inch below the level of the umbilicus. Her weight was 22 lb.

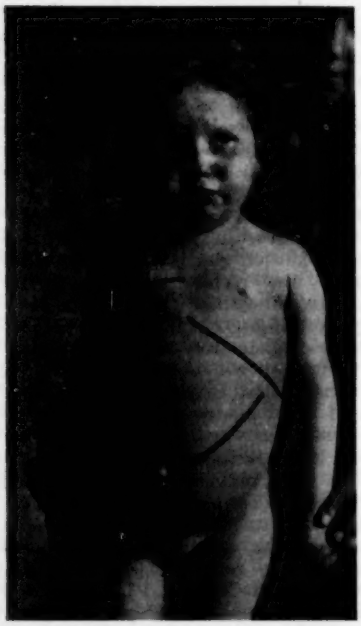

FIG. 1.—Photograph with black lines showing lower borders of the ribs and upper and lower border of the liver.

She has been under continual observation since this time, and has kept remarkably well apart from colds and occasional bronchitis. In August, 1931, she was admitted to hospital and at this time the lower border of her liver reached the level of the umbilicus. Investigations showed: (*a*) weight at the age of 2 years and 10 months, 21 lb. 4 oz.; temperature, normal; pulse-rate, 100–110; girth at the umbilical level, 18¼ in. (*b*) By X ray the upper border of her liver was of the usual level. (*c*) Van den Bergh reaction was negative. (*d*) Lævulose tolerance normal; blood-sugar before 15 g. lævulose, 0·083 per cent.; after 45 min., 0·087 per cent.; 95 min., 0·086 per cent.; 125 min., 0·086 per cent. (*e*) Fæces showed no abnormalities chemically or bacteriologically. (*f*) Wassermann reactions on blood of patient and her father and mother all negative.

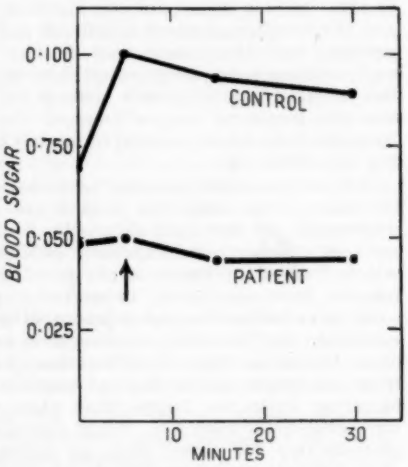

FIG. 2.—Blood-sugar (mg. per 100 c.cm.) of the patient and of a control after injection of adrenaline ℥ 4. The control patient was a child of the same age in hospital with hernia. Her urine was free from acetone, whereas the patient's urine contained acetone throughout.

Since that time she has slowly gained weight, and at the age of 5 years weighs 28 lb. and her height is 33 in. She is a bright and intelligent child with a head which is relatively large for her small stature; her face is plump, which is in contrast to her limbs which are small and flabby. Her abdomen is very prominent, as shown in Fig. 1, and this is due to a regular enlargement of her liver, which reaches to the right iliac fossa. The surface is smooth and the edge firm but not hard, and a well-marked umbilical notch can be felt. There are one or two slightly dilated veins on the surface of the abdomen, but the spleen cannot be felt. At no time has there been ascites. Her heart, lungs, and nervous system are all normal. Her blood count showed Hb. 80 per cent., red cells 4,920,000, colour-index 0·8, white cells 6800 (polymorph. 52 per cent., large mononuclear 2 per cent., lymphocytes 46 per cent.). Her glucose tolerance showed: resting value 86 mg. per 100 c.cm., 20 g. of glucose given; 20 min. after, 160 mg.; 50 min. after, 152 mg.; 110 min. after, 112 mg. During this test no sugar appeared in her urine but a moderate quantity of acetone was present at the beginning of the test, and it was in greater quantity at the end of the test. As shown in Fig. 2 her fasting blood-sugar was 48 mg., and there was no appreciable rise to ℥ 4 of adrenaline given subcutaneously as compared with a control child of the same age. Her urine is usually quite normal and contains no acetone, but if she is starved for a short period this readily appears.

This case was demonstrated at the children's section of the Royal Society of Medicine in February, and Dr. Parkes Weber agreed it was almost certainly a case of von Gierke's disease, as this is the only condition which causes so much enlargement of the liver at this age, without jaundice or splenomegaly. It has been stated that the condition can only be diagnosed by liver puncture but, as Schall points out, hypoglycæmia readily occurs accompanied by acetonuria, and adrenaline cannot mobilise the glucose from the liver. Adrenaline acts only in

mobilising glucose from glycogen through the diastatic ferment of the liver (which is diminished or absent in this disease), and this appears to be a very good test to confirm the diagnosis. In this case, as in that of Bellingham Smith and O'Flynn, there is a strong suggestion of a family tendency to this condition.

I am indebted to Dr. W. Smith for the pathological investigations recorded in this case.

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TWO CASES OF ACUTE ASEPTIC MENINGITIS

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I AM encouraged to publish the following two cases of acute aseptic meningitis by the scanty number of the cases previously recorded in this country. The condition has been recognised on the Continent since 1910, and cases have been described under various terms: benign aseptic purulent meningitis (Schiff); acute idiopathic benign serous meningitis (Andersen and Wulff); epidemic meningitis serosa (Eckstein); and acute aseptic meningitis (Günther). The cases are, however, essentially the same, and the name first applied by Günther has been generally adopted in this country.

Acute aseptic meningitis is characterised by[1]: (1) An acute onset with definite meningeal signs. (2) Meningitic changes in the cerebro-spinal fluid—increased pressure and cell content—but the fluid is sterile on culture. The cells are usually lymphocytes and number 100–250 per c.mm. Occasionally polymorphs predominate at the onset, to be replaced by lymphocytes later. (3) A uniform symptomatology. (4) A short, benign course with no complications. (5) No epidemiological connexion with any known infectious meningeal disease. (6) No local infection, such as otitis media or sinusitis.

The importance of the condition lies mainly in its differential diagnosis from tuberculous and other forms of meningitis, and in view of its uniformly benign course, the giving of a correct prognosis.

Most of the cases previously recorded in this country have been in children. Three typical cases have been described by Gibbens,[1] and two by Rankin,[2] but I have been able to find only one adult case—that described by Gordon and Abrahams.[3]

THE FIRST CASE

A girl, aged 20, employed as a shop assistant in London, was admitted to the Middlesex Hospital on August 11th, 1932, complaining of severe occipital headache extending about half-way down the spine, general malaise, fever, and anorexia. She had been perfectly well until August 5th, when she noticed a headache on rising, and felt feverish (102° F.). The headache had persisted up to the date of admission. There was no sore-throat, no rash, no cough, no vomiting, and no abdominal pain. Micturition was normal, and the bowels constipated. She had lost about 10 lb. in weight during the previous month.

There was a history that two relatives on the father's side had died of tuberculous meningitis. A tuberculous gland of the neck had been excised at the age of 5 years, and she had had diphtheria at 7 years, but no other illnesses.

On admission her temperature was 100·2° F., her pulse-rate 84, and her respiration-rate 22. She appeared fairly well nourished (8 st. 7 lb.), but there was slight facial pallor. There was some fœtor of the breath, but no oral infection apart from one carious tooth, which was removed later. Photophobia was well marked; the pupils reacted normally to light and accommodation, and the fundi were normal. Head retraction was absent, but some increase in tone of the posterior cervical muscles was noted, with resistance to flexion (which caused pain). Kernig's sign was positive. No other abnormal signs were found in the central nervous system. Nothing abnormal was found in the cardio-vascular or respiratory systems. Examination of the abdomen revealed no splenic enlargement or other abnormality. The urine was normal. The mental state was at all times clear, and no lethargy was noticed.

Investigation. — Lumbar puncture, performed on August 12th, revealed a clear fluid under increased tension. No pellicle formed on standing. There were 250 lymphocytes and 5 endothelial cells per c.mm. The total protein was increased to 0·14 g. per cent. (Nonne-Apelt: Phase I., very faintly positive; Phase II., positive.) The chlorides were 610 mg. per 100 c.cm. The fluid was sterile on culture, and no tubercle bacilli could be identified in a stained smear of the deposit. A blood count showed 12,000 leucocytes per c.mm. A catheter specimen of urine gave no deposit, but a sparse growth of *B. coli* on culture. The blood Wassermann reaction was negative.

Progress.—The headache was relieved by lumbar puncture and had completely disappeared on August 15th. By that time the patient felt better and the photophobia had gone. The appetite remained poor, and neck rigidity was still present, with a doubtful Kernig's sign. The temperature was intermittent (98°–99·6° F.) until August 19th, and subsequently remained normal. The appetite improved with general tonics, and the patient rapidly became symptom-free. No fresh signs appeared. A blood count on August 19th showed hæmoglobin 90 per cent., 4,310,000 red cells per c.mm., and 6400 white cells per c.mm. The differential count was normal. On August 18th there were 50 lymphocytes, 5 red cells, 1 polymorph, and 1 endothelial cell per c.mm. in the cerebro-spinal fluid. The protein was 0·15 g. per 100 c.cm., the chlorides 730 mg., and glucose 41 mg. No organisms were found, and a guinea-pig inoculated with the fluid showed no tuberculous lesions after six weeks. The fluid gradually returned to normal, and on Sept. 6th there were 18 red cells and 20 lymphocytes per c.mm.; the protein was 0·06 g. per 100 c.cm. The Wassermann reaction was 0 0 0 0 0, and the Lange colloidal gold curve 0 0 0 1 2 2 3 1 0 0.

The patient was discharged on Sept. 23rd absolutely well. On Jan. 1st, 1933, she was quite well, her appetite good, and her weight 8 st. 9 lb. (compared with 8 st. 7 lb. on admission, and 8 st. 4 lb. while in hospital).

THE SECOND CASE

A man, aged 32, employed as a secretary-accountant, was admitted on Sept. 29th, 1932, complaining of acute pain in the head of six days' duration. The pain was chiefly in the frontal region and extended to the vertex. There was also aching of the eyes, general malaise, fever, and slight pain in the back. The appetite was poor; there had been no vomiting; the bowels had been loose recently; there was some frequency of micturition. There was no loss of weight. The patient had been sleeping badly.

The family history contained nothing relevant. The patient had had a right aural discharge in February, 1932, but none since May. He had also had occasional sore-throats.

On admission the patient appeared well nourished. His temperature was 101° F., his pulse-rate 84, and his respiration-rate 28. The tongue was furred, the teeth good, and the pharynx normal. There was no photophobia or head retraction. Slight neck rigidity was noted, but Kernig's sign was negative. The pupils were normal. The outlines of the optic discs appeared slightly blurred, especially on the left side, but there was no measurable swelling of either disc. The reflexes were normal. Nothing abnormal was found in the cardiovascular or respiratory systems. The blood pressure was 120/80. The abdomen was normal, and the liver and spleen not palpable. The urine was normal. Otorhinological examination revealed no evidence of aural or sinus infection.

Investigation.—Lumbar puncture on Oct. 3rd showed that the cerebro-spinal fluid was under increased tension, and contained 250 lymphocytes, 65 red cells, and 10 endothelial cells per c.mm. Its Wassermann reaction was 0 0 0 0 0, and its Lange curve 1 1 1 2 2 3 3 3 3 2. On culture it was sterile, and no tubercle bacilli were found. On Oct. 12th the fluid contained 100 lymphocytes, 10 red cells, and 3 endothelial cells per c.mm. The protein was 0·07 g. per 100 c.cm. (Nonne-Apelt: Phase I., faintly positive; Phase II., positive); the chlorides 700 mg.; and the glucose 46 mg. The urine was sterile on culture. The Wassermann reaction in the blood was negative. The leucocyte count was 5000 per c.mm. with a normal differential count. The Widal test was positive for *B. typhosus* to a titre of 1/80, but

negative for *B. paratyphosus* A and B. The fæces yielded no abnormal organisms.

Progress.—The temperature was irregular at first, rising at times to 101·5° F. It fell on Sept. 9th and thereafter remained normal. The headache disappeared soon after the first lumbar puncture, and all the symptoms rapidly cleared up. The appetite improved. The bowels tended to be constipated while the patient was in hospital. He slept soundly after the first week.

The fluid gradually approached normality. On Nov. 3rd there were 26 lymphocytes and 2 endothelial cells per c.mm. The protein was 0·07 g. per 100 c.cm.; the chlorides 730 mg.; and the glucose 54 mg. On Nov. 16th there were 14 lymphocytes and 1 endothelial cell; the protein was 0·05 g.; the chlorides 731 mg.; and the glucose 62 mg. He was discharged fit on Nov. 18th and had remained well up to Dec. 31st.

COMMENT

In both these cases headache was the most prominent symptom associated with meningitic signs—well marked in the first case, but less so in the second. There was an initial fever, lasting 10 days in Case 1 and 17 days in Case 2. The cerebro-spinal fluid was under increased tension and showed a lymphocytic reaction. In both cases the chloride content was normal, the glucose slightly diminished, and the fluid sterile. The fluid gradually returned to normal, and convalescence was rapid. There were no sequelæ.

In Case 1 the bad family history pointed to a probable diagnosis of tuberculous meningitis, but this was excluded by repeated lumbar puncture and the favourable course taken by the disease. In Case 2 the history of aural discharge suggested the possibility of a sinus infection with serous meningitis, or a cerebral abscess. The former was excluded by examination of the ear and nose, and the latter by the course of the disease and the absence of signs of intracranial tumour.

The treatment adopted consisted of rest in bed until the symptoms had disappeared and the fluid was approaching normality. Hexamine was administered on the assumption that it reaches the fluid and exerts an antiseptic action. General tonics were indicated to correct the anorexia. Lumbar puncture was repeated at weekly intervals as a therapeutic measure, and to determine the course of the disease.

In conclusion, I wish to thank Dr. D. McAlpine and Dr. G. E. S. Ward for their kind permission to publish the first and second cases respectively; for the laboratory investigations I am indebted to Prof. J. McIntosh, of the Bland-Sutton Institute of Pathology, and Prof. E. C. Dodds, of the Courtauld Institute of Biochemistry.

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MEDICAL SOCIETIES

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM

THE annual congress of this society was held in the Barnes Hall of the Royal Society of Medicine, London, from May 11th to 13th, under the presidency of Dr. A. H. H. SINCLAIR, of Edinburgh. The clinical meeting took place at the Central London Ophthalmic Hospital, where a large number of cases were seen and discussed.

Mr. W. S. DUKE-ELDER, who was presented with the Nettleship medal and prize for "the most valuable contribution to ophthalmology during the three years immediately preceding the award," read a paper on the

Ætiology of Primary Glaucoma

Chronic glaucoma, he said, might be produced by swelling of the vitreous body; the shallow anterior chamber, the pushing forward of lens and iris, the compression of the whole uveal tract, seen in pathological specimens all pointed to this origin. His own view was that the vitreous body was a gel composed of all the diffusible constituents of the blood to which was added protein.

On the other hand acute glaucoma was probably a heterogeneous clinical group; he proposed to discuss the possible mechanism of a vascular crisis which might result in the clinical picture of acute glaucoma. The most dramatic crisis was that following a temporary total stoppage of the circulation which could be brought about by raising the intra-ocular pressure to a height above that in the ophthalmic artery (apparatus shown on the screen). Within 30 seconds of the circulation being restored the vessels in the iris were seen to be maximally dilated; the amplitude of the pulse, as shown by the tracings, became greater; the appearance of trypan-blue, injected intravenously, over the surface of the iris and in the anterior chamber showed increased permeability of the capillaries. Further evidence of increased flow of blood was seen in a rise of temperature of 1° to 2° C. in the anterior chamber, in maximal contraction of the pupil, and in a sharp rise of the intra-ocular pressure within two to three minutes. At a later stage, though the increased pressure was maintained, there was a decline in the amplitude of the pulse. The continued maximal dilatation of the small vessels, the constriction of the pupil and the other events indicated, Mr. Duke-Elder thought, that the cause of the disturbance was the liberation in the eye of a histamine-like substance analogous to that described by Lewis and his colleagues with potent effects on the skin. In fact the injection into cats of aqueous humour drawn from such an eye showed the presence of a vasodilator substance. When he stroked a segment of the iris with the cannula of the manometer as it lay in the anterior chamber of the eye, he noted the following results: after a latent period of 30 seconds a dilatation of the small vessels over the area stroked; an increased permeability of the minute vessels on the surface of the iris; after a latent period of 60 seconds a rise of temperature of 0·5° to 1·5° C.; a maximal and constant constriction of the pupil, continuing indefinitely; and a rise in intra-ocular pressure.

A similar series of experiments with 2 per cent. cocaine instilled into the conjunctival sac made it evident that there were two types of response: one of local distribution and not dependent on nervous activity, the other of general distribution and taking place only when the sensory nerves were intact. On the evidence disclosed, Mr. Duke-Elder concluded that he was dealing with an axon reflex mediated by the trigeminal nerve, similar to those which in 1910 Bruce described as occurring in the conjunctiva; the possibility of this being so was confirmed by the effects of sensory stimulation of the cornea. The entire uveal tract was known to be plentifully supplied with a nervous network richly interspersed with ganglion cells, and presumably it was upon this basis that the described responses rested. Any upset of the metabolism tended to liberate histamine-like

bodies in any tissue, and it might well be, he argued, that the acute vascular crises associated with an increased permeability of the intra-ocular vessels, and with the destructive rise of pressure characterising acute glaucoma, found a possible explanation in the liberation of this substance, and the dissemination of its influence over the entire uveal tract by a system of axon reflexes.

Cataract in Dystrophia Myotonica

Dr. J. E. CAUGHEY (Auckland, N.Z.) said he had had the opportunity of studying a number of these cases. In 1911 Greenfield gave an account of presenile cataracts in a large family, some members of whom suffered from dystrophia myotonica, and in the following year Curschman gave his classical description of the disease. It was a heredofamilial disease, and the phenomenon of anticipation—as in other heredofamilial diseases—was shown in the occurrence of cataract for a generation or two as the only sign of a degenerative process. Then came suddenly the "dystrophic generation" in which the fully developed disease appeared. The clinical findings could be described under five headings: muscle wasting, myotonia, reflex changes, general dystrophic symptoms, mental changes—the last-named making these patients suspicious and difficult to handle. In 1924 Adie found records of 106 cases of cataract in dystrophic families, and in 17 members of the dystrophic generation cataract occurred alone. In the dystrophic generation the earliest lens opacities appeared at 20–30 years of age, and if cataract arose in the preceding generations it occurred later in life; in Greenfield's record of a family cataract in the father's generation developed at 60 and 69 years, while in the members of the dystrophic generation it occurred at the ages of 22, 28, and twice at 30. In a number of cases seen by Dr. Caughey the cataracts had been quite symptomless, and were only manifest when searched for with a slit-lamp; possibly in the early generations the cataract might be presenile. It was yet to be discovered what was the explanation of such diverse changes as myotonia, muscle wasting, cataract, and testicular atrophy.

Dr. W. CLARK SOUTER (Aberdeen) related two cases of myotonia atrophica (first cousins) in which he had removed the cataract. The first case of the kind to be brought before the society was one by Mr. A. W. Ormond in 1911, Dr. Kinnier Wilson describing another in 1918. He agreed as to the difficulty of finding a pathological process to explain such a variety of troubles; much more investigation was needed. Were the cataracts in the non-myotonic members in such families all of the special myotonic type, or were they ordinary senile or presenile cataracts? Slit-lamp observations alone could settle this point. He thought but few people would support Siegrist's attribution of all senile cataracts to deficiency in the gonads, but the present disease was certainly one in which the endocrine system, particularly the generative apparatus, was frequently found to be at fault, so frequently that the association must be more than fortuitous. In his Bowman lecture Nettleship had stated that senile, presenile, and juvenile cataract might be transmitted through several generations, and that either sex might pass it to either sex or to both sexes. He also said that the descent was practically continuous. In the two cases Dr. Souter pointed out the defects in detail and stressed the significance of the progressively weakened grasp.

Use of Radon in Intra-ocular Conditions

Mr. R. FOSTER MOORE limited his remarks to the type of intra-ocular disease which appeared amenable to treatment by radium emanations in the form of seeds. He considered three such: sarcoma, glioma, angioma—remarking that other forms of intra-ocular diseases were being investigated. A man, aged 65, with a sarcoma of the choroid in the left eye, the right having been practically blind since childhood from leukoma adherens, refused to have his only eye removed, and Mr. Moore treated it with radon. At the end of three and a half years the growth was less than before treatment, there was no extra-ocular extension, nor discoverable evidence of dissemination. It was apparent that sloughing of the sclerotic or other tissues need not be feared, and that a sarcoma would at least shrink and remain shrunken for a long time under treatment. He had treated five cases of retinal glioma, some of them by interstitial insertion, some by scleral application, some by a combination of both methods. One was that of a boy whose elder brother having died of double retinal glioma the mother refused the suggested removal of both eyes. Mr. Rupert Scott removed one eye which was useless, confirmed the diagnosis of glioma, and transferred the patient to Mr. Moore's care; three and a half years after the radon seed was inserted the boy was in good health and attending an ordinary school. Marked fundus changes could be seen, probably a result of the irradiation of the choroid, but no mass which could be regarded as growth. As to retinal angiomata, he was anxious to extend his observations on this condition. One case was that of a woman, aged 24, who had one eye blind from very extensive angioma, the other being the seat of a small angioma. Mr. Moore made scleral application of three seeds of 5 millicuries strength, leaving them in position ten days. In an area of retina there quickly developed the appearance usually associated with coagulation necrosis, and a few hæmorrhages appeared at the site. This appearance slowly subsided, and the affected area took on a mottled appearance, the vessels becoming obliterated, and all signs of the angioma vanished. A defect in the visual field was left, corresponding with the scarred area, but central vision was 6/6.

Speaking of the choice of cases Mr. Moore said he would not at present recommend treatment with radon in a case of melanotic sarcoma where the other eye was sound; in the case of a growth in an only eye he felt it his duty to put the pros and cons to the patient, radon only being tried if enucleation was declined. Effective irradiation abolished the danger of dissemination of a sarcoma; hence interstitial irradiation probably entailed no greater risk to life than removal of the eye. But he would not recommend radon treatment as a substitute for enucleation in a uni-ocular case, and the second eye should be examined under general anæsthesia to guard against a small growth being overlooked. Binocular glioma presented a different situation, because it was in these cases that a really early stage of growth was encountered. Advice was seldom sought for glioma until the growth in one eye had attained the cat's-reflex stage, when a large part of the retina was already destroyed. When a small second growth was found in the other eye there was as yet no risk of dissemination, and radon should certainly be tried. In retinal angiomata he believed radon to be practically the only treatment. But nothing in his experience had the slightest influence on Eales's disease.

Mr. Moore discussed technique, remarking that the weakest strength he had used was 1 millicurie, the strongest single seed 5·3 millicuries inserted interstitially, and the greatest dose employed at one time five seeds of 3·5 millicuries, the filtration being through

0·5 mm. of platinum. Usually he left the seeds in position ten days. The chief complications to beware of were suppuration and the effects of the emanations on surrounding tissues. In at least two of the cases changes had occurred in the lens. In two cases panophthalmitis ensued; two days after inserting the seeds there was seen in the conjunctiva an opaque, white, necrotic appearance at its cut edge, and this took weeks, even months, to clear up.

Mr. H. B. STALLARD described the intimate tissue changes in these cases.

Exudative Retinitis in Children

Dr. JOHN MARSHALL and Dr. I. C. MICHAELSON described five such cases of which the characteristic features were: they were all under five years of age, the condition was chronic, all showed a condition affecting chiefly the outer layers of the retina, and the presence of large bladder-like cells in the retina and subretinal space. Since the vessels were normal, hæmorrhages probably played only a secondary rôle. The hexagon pigment layer was uninterrupted and normal. The cases were examples of the condition described by Leber as retinitis exudativa serofibrinosa. The retinitis was probably embolic-toxic in origin.

Mr. R. AFFLECK GREEVES said that circumstances sometimes arose which rendered it desirable to ensure that the wound edges in a cataract extraction should be powerfully held together—e.g., fluid vitreous, hypermature cataract with feeble zonular ligament, lens in the anterior chamber, or whenever loss of vitreous was likely to occur, and cases likely to be subjected to unavoidable movement after the operation, such as from cough or sneezing bouts. Sepsis had been mentioned as a possible danger from the use of the suture, but his experience was that this danger was unreal. He left the suture in position a week, and was not aware of it having caused irritation or discomfort.

Mr. L. H. SAVIN discussed the relationship between certain cases of herpes ophthalmicus and varicella. Eighteen cases were related: in three of them zoster preceded varicella in contacts, in two cases varicella preceded zoster in contacts, in one case varicella and herpes appeared almost simultaneously in contacts. Six of the eighteen had previously suffered from chicken-pox. Complement-fixation and inoculation tests suggested that there existed a relationship between zoster and varicella, and he thought it likely that the conditions were due to modified strains of the same virus, much like vaccinia and variola, not identical diseases.

Mr. C. DEE SHAPLAND read a paper on diathermy in the treatment of detachment of the retina. There were, he said, two chief methods of treating retinal detachment by this means: Weve's (Utrecht) and Larsson's (Stockholm). The latter modified had been used at Moorfields in 131 cases, the first operation having been performed there in August, 1932. The average age of the patients was 43 years. A history of injury direct or indirect was ascertained in 33 per cent. of the cases which were emmetropic, in 20 per cent. of the myopes. One or more retinal holes were found in 81 per cent., and of these 91 per cent. were in front of the equator; in 34 per cent. the rents were multiple. Of all the cases operated upon by endothermic cauterisation 43·5 per cent. were cured, 13 per cent. improved. There had been a notably small number of complications and his feeling was that endothermic cauterisation was the most satisfactory method yet devised for simple detachment.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY

AT a meeting of this society held on May 11th at Chandos-street, W., with Prof. W. LANGDON BROWN in the chair, Dr. J. C. YOUNG read a paper entitled

The Sterility of Modern Psychiatry

He attributed this sterility to a lack of imaginative understanding of the imperative which Adler stresses—namely, that life is coöperation. Official psychiatry fails to see that its material is a disease of the whole social body, and that every man, more especially the psychiatrist, is responsible for what we call mental and nervous disease. Clinging to the metaphysical dogma of psycho-physical dualism, actually it gives but grudging lip-service to the mental side, while concentrating with a kind of feverish fanaticism on the findings of the laboratory, that is, on the material or physical dichotomy, and tries every novel mode of investigation in the hope of discovering some physical concomitant to which causation can be ascribed.

Although, after its first frantic revulsion against Freud's work, official psychiatry has now accepted Freudian theory, it has done so as a matter of expediency—it dared not ignore a system which made the welkin ring with its scientific pretensions and which caught the imagination of popular intellectuals. Devoid of critical discrimination, however, it has neither effectively rebutted the false scientific pretensions of Freudianism, nor incorporated the real significance of Freud's teaching into its scheme of things. Individual psychology, on the other hand, maintains that the attitude or goal is the individual, and to the extent that it is humanly coöperative, it either integrates the individual in healthy and useful achievement, or disintegrates him into neurotic or psychotic escape. Psychiatrists, by their rejection of the idea of responsibility, reject the stone which, in Dr. Young's opinion, must become the head-stone of psychiatry and medicine in general. Otherwise preoccupation with man as object of natural science, to the exclusion of man as pure subject of knowing and willing, must lead to greater sterility, and to the extinction of medicine as an art, in favour of a kind of black art practised by robot doctors on robot patients.

In preventive medicine official psychiatry stands accused of not pulling its weight. Here it has done little else than to look for every possible—and impossible—cause of toxæmia, examining the fæces, for example, with a mule-like pertinacity which too often passes for scientific devotion. But no contemplation, however profound, of an insane person's fæces enables us to understand the nature of his insanity, any more than brain sections, however beautifully stained, help us to weigh the imponderable of human circumstances, falsely supposed to be discoverable in the final result—the cadaver. Individual psychology by its conception of the telos, or the final goal of coöperative responsibility, stands as a challenge to official psychiatry, and points the way to a more enlightened attitude to life.

DISCUSSION

The PRESIDENT agreed with some of Dr. Young's strictures. Valuable as was the work of biochemistry, the prevalence of pseudo-biochemistry constituted one of the greatest dangers at the present time, forming a new sort of quackery.

Dr. M. MACKENZIE remarked that official psychiatry had received from time to time severe traumata,

which formed indeed the "neurosis of psychiatry." In the first place the neurologist presented to the psychiatrist patients with "doubtful signs." Adjustment was disturbed by the intervention of the biochemist, and then polyglandular therapy had to be considered. It was time that the psychiatrist took up a more positive position from which he could make real progress.

Dr. F. G. CROOKSHANK said that medicine needs some metaphysical basis. Some authorities thought that a metaphysical problem lies at the bottom of every neurosis. The question at issue was why patients have physical symptoms. The family would not accept responsibility.

Dr. O. H. WOODCOCK considered that some of the charges made against official psychiatry were unjust. Many medical officers had derived benefit from the study of Freud. Wexburg thought indeed that psycho-analysis is a good preparation for individual psychology. Dr. Woodcock spoke of the value of biochemical work.

Dr. G. GORDON considered that there was a noticeable change in the attitude of psychiatrists as a whole, and that treatment of mental patients within the last ten years had improved.

REPLY

Dr. YOUNG said that there was a tendency to use instruments, for instance the various "scopes," as the chief method of investigation, instead of regarding the patient as a whole. He agreed with Dr. Crookshank in the occasional difficulty of gaining the coöperation of relatives, who do not care to take responsibility. He thought that psychiatrists in general accepted Freud in a wooden way; they lacked critical, constructive capacity.

ROYAL ACADEMY OF MEDICINE IN IRELAND

A MEETING of the section of pathology was held in the Royal College of Physicians on May 5th, Dr. J. MCGRATH, the president, in the chair.

Myelogenous Leukæmia

Dr. A. HALPENNY showed the liver and spleen from a case of myelogenous leukæmia. The patient, a married woman aged 50, was admitted to hospital in February last. She had suffered from chronic constipation for many years, and had had several attacks of bronchitis, but otherwise had been well until five weeks before admission. Her legs, arms, and face then became swollen, and on exertion she became breathless and had pain over the precordium. On admission she looked ill, was very breathless, and had a severe cough. The physical signs of bronchitis were present over both lungs; the abdomen was tense and the liver enlarged. The Wassermann reaction was negative. The blood pressure was 130/90, and a blood examination showed no nucleated red cells. The patient died a fortnight after admission. A complete autopsy was not obtainable, and only the abdomen was opened. The liver seemed to occupy almost the entire cavity, was pale in colour, and weighed 3324 g., more than twice the normal weight. There were numerous adhesions to the capsule of the spleen, which weighed 1150 g. There were no obvious infarcts. The gastro-intestinal tract and kidneys were macroscopically normal. Microscopic examination of sections of the liver and spleen showed the blood sinuses and capillaries to be packed with leucocytes and immature white cells amongst which eosinophil myelocytes were distinguishable. The capsule of the spleen and fibrous trabeculæ showed moderate thickening.

The PRESIDENT said that in this case the spleen showed no infarcts, and seemed to be fibrotic. In cases of leukæmia, the spleen seemed to become fibrotic after the disease had progressed for some time. Some observers attributed this to the breakdown in the spleen of abnormal circulating cells. He asked if the patient had had any X ray treatment to the spleen.

Prof. T. T. O'FARRELL drew attention to the absence of nucleated red cells in this case, and said that their absence was very rare in cases of leukæmia. He asked Dr. Halpenny if she had made any attempt to stain sections by Leishman's method; he personally had never had much success from such staining.

Dr. A. R. PARSONS advocated X rays in the treatment of leukæmia.

In replying, Dr. HALPENNY said that the patient had not had X ray treatment. When she was admitted to hospital the bronchitis was so severe that attention was directed mainly to this symptom and before admission she had not had any medical treatment. The speaker had stained two sections with Leishman, and the result, though not very good, was fairly satisfactory.

Types of B. diphtheriæ

Dr. G. C. DOCKERAY read a communication on types of *B. diphtheriæ* and their isolation. He referred to McLeod's classification of "gravis" and "mitis" types and described his own experience of the chocolate tellurite medium which McLeod and others had described. He had found it very satisfactory to use, but he now employed a somewhat different medium containing citrated human blood instead of defibrinated rabbit blood and a tryptic digest broth sterilised by autoclaving instead of by filtration. This medium was very easy to make and the "gravis" and "mitis" type of colony could be distinguished in cultures made on it; 76 per cent. of the strains of *B. diphtheriæ* isolated by him in Dublin were of the "gravis" type. He had not been able to show that the severity or mildness of the disease depended upon the presence or absence of the "gravis" type of bacillus. Recently, at the request of Dr. V. O. McCormick, he had looked for carriers in an orphanage where three deaths from diphtheria had occurred during the previous year. He took throat and nasal swabs from all the inmates, numbering 35, and plated them on Loeffler's medium and also on his own modification of the chocolate tellurite medium. Of the Loeffler cultures two showed the presence of the "mitis" type of bacillus. These bacilli proved to be non-virulent when injected intramuscularly into guinea-pigs. With the use of the chocolate tellurite medium six additional carriers were detected. All these bacilli were of the "gravis" variety as shown by colony formation, fermentation of starch, and pellicle formation on broth. These six strains were all virulent for guinea-pigs, which died within forty-eight hours. Without the use of the chocolate tellurite medium none of these carriers of virulent bacilli would have been detected.

The PRESIDENT asked if the Schick test had been done on the children in the orphanage, to which Dr. Dockeray had referred. Did Dr. Dockeray regard the gravis and mitis type of bacilli as being grave and mild in toxicity or in virulence?

Dr. V. O. MCCORMICK said that several of the children had been ill before and had had sore-throats,

but a swab for diphtheria had never been positive until this time. He thought that the previous cases were probably cases of diphtheria. Now seven carriers had been found. He intended to carry out Schick tests next week.

Dr. R. R. WOODS referred to the extraordinarily high incidence of carriers in connexion with diphtheria as estimated by bacteriologists. He wondered whether the finding of diphtheria bacilli really constituted a source of infection; possibly a very large number of the carriers did no harm.

Dr. R. H. MICKS asked if there was any evidence to show that a diphtheria carrier could get a second attack of the disease.

Dr. A. R. PARSONS said that apparently diphtheria was now as prevalent as ever it was. It was usual to get a report on a swab in twenty-four hours, but from what Dr. Dockeray had said it apparently took much longer than this to know if a case was really diphtheria or not.

Dr. J. W. BIGGER said that there was a great difference between making a diagnosis of diphtheria and looking for a stray case of the disease or a possible carrier. In an ordinary case of diphtheria it was nearly always possible to give a definite result in eighteen hours, but not when dealing with carriers.

Dr. DOCKERAY, in reply, said that he did not know of any evidence to show that a diphtheria carrier could get a second attack of the disease. He thought that carriers were much more common than was generally suspected.

Prof. T. T. O'FARRELL read a paper on a Plea for More Realistic Blackboard Drawing.

REVIEWS AND NOTICES OF BOOKS

Food and the Principles of Dietetics

Seventh edition. By ROBERT HUTCHISON, M.D., F.R.C.P., Physician to the London Hospital, and to the Hospital for Sick Children, Great Ormond-street; and V. H. MOTTRAM, M.A., Professor of Physiology at King's College of Household and Social Science, University of London. London: Edward Arnold and Co. 1933. Pp. 630. 21*s*.

Dr. Robert Hutchison's book has a proud record. The groundwork of the first edition was a course of lectures given to students at the London Hospital, at a time when less attention was directed to the constituents, preparation, and use of food in health and disease than is the case to-day. This basis of clinical application has never been lost, and is one of the greatest assets of a work which has long been recognised as a classic. The easy atmosphere of the lecture room and the intimacy of a bedside talk has survived six editions (and 15 reprints) in the course of the last 32 years, and it is this simplicity of presentation which makes the work so attractive.

In this, the seventh edition, Dr. Hutchison has secured the coöperation of Prof. V. H. Mottram, and the association is a happy one. The opening chapters are mainly written by Prof. Mottram. They cover the nature, nutritive constituents, and relative values of food, the amount required in health, and the influence of various conditions on a healthy dietary. Information is packed into these 81 pages, and the reader will wish that the subject matter was a little less condensed. Thus the statement (p. 12) "that one need have no hesitation in ordering a patient, say a diabetic, to consume ½ lb. of butter every day" is not unconditionally acceptable. The section on vitamins is particularly helpful, and the notes on diet for those in training for athletic events are provocative. In the main part of the book the various foods, animal and vegetable, are considered from every angle, including the economic, in minute detail. The greatest merit of this survey, however, is the neat way in which fundamental principles stand out, though stated without especial emphasis. For example, we are reminded that the greater the extent to which the chemical digestion of a food goes on in the stomach, the easier does its mechanical digestion prove; that the value of fish as a source of energy depends entirely on the amount of fat which it contains; that the extractives of meat are incapable of either building up tissues or of supplying the body with energy, and are therefore not foods; that milk is only a fluid outside the body; and that in buying foods we pay usually for the likings of the palate rather than for the needs of the body. The food-value of cereals is carefully discussed, and also the processes of milling and baking. Extensive tables are given of various biscuits and patent breads, with details of their proportions of protein, carbohydrate, and fat, and of caloric value per pound. The question of the relative nutritive value of white and wholemeal bread is left open; wholemeal bread is, as a rule, richer in protein and mineral matter, but its lower capacity for absorption, it is held, tends to cancel this advantage. A strong case is made for oatmeal porridge and milk as nutritive agents, provided the oatmeal has been thoroughly boiled. The sections on vegetables, fruits, and beverages contain descriptions of the best methods of preparation, time required for absorption, and influence on digestion. An interesting chapter is devoted to cooking. The advantage of slow cooking is emphasised, and the economy in the use of fuel achieved by covering the oven with some non-conducting material. The authors point out that all electric and most gas stoves are now constructed on this plan, but that the usual English range remains much as it was when this book was first written.

We are reminded of the importance, when a diet is being planned for a special purpose, of taking into consideration the rate of digestion of different foods. For example, a bread and butter meal taken at 8 A.M. is digested and used up by the system in about three hours, and a period of starvation follows till the next meal is eaten (Clement Dukes). An ordinary dinner takes 4–5 hours to leave the stomach (Verhaegen). "Frivolous conversation" is recommended as the best employment after a heavy meal, and sleep is held to aid digestion only in invalids and aged persons. A number of diets are set out, suitable for healthy persons of different ages, and for patients suffering from certain diseases. The section dealing with the feeding of infants and children shows vividly the common sense which is a typical feature of the work as a whole. The danger of too much fat in a baby's diet is noteworthy; if given in excess, it is a frequent cause of vomiting and diarrhœa. The reminder that an infant may suffer from thirst is fortunately less needed than it was 20 years ago, when cold water was rarely offered to an infant even if it was suffering from evident but unexplained discomfort. The dietaries appropriate to different diseases are clearly demonstrated, and the authors set out why, in their view, the special "diabetic breads" are best avoided. Those which are really palatable

contain starch, while those which are starch-free are held to be expensive and usually not well tolerated. We note with interest the dictum that in obesity the influence which the amount of water in the diet exerts is very small; that in gout "quantity must be controlled as well as quality." In acute diarrhœa, after a preliminary fast and some days on decoctions of cereals, a tentative trial of milk may be made, with a little lime water. The proofs have been carefully read, misprints are rare, but in the last line on page 524 "1931" should surely read "1933"; this is of some importance as in his latest book R. D. Lawrence refers to the higher carbohydrate diet now generally allowed to diabetics, an innovation not discussed by Dr. Hutchison and his collaborator. The text is well seasoned with appropriate tables, diagrams, and schedules.

The scope of this excellent work is extensive enough to fill the need of consultants and practitioners, as well as students; and the research worker will find more than the exhaustive bibliography to attract him to its pages. It is encyclopædic in its survey, and sane and practical in its teaching.

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1. Varicose Veins and Hæmorrhoids

By V. MEISEN, M.D., former Chief Surgeon to the Policlinic, Sundby Hospital, Copenhagen. Translated by HANS ANDERSEN, M.D. Copenhagen: Levin and Munksgaard. 1932. Pp. 149. 10*s.* 6*d.*

2. Les maladies des veines

Et leur traitement. By G. DELATER. Paris: Masson et Cie. 1932. Pp. 371. Fr.45.

3. Injection Treatment in Medical Practice

By DAVID LEVI, M.B., M.S., F.R.C.S. Eng. London: Cassell and Co., Ltd. 1932. Pp. 150. 6*s.*

Injection Treatment of Varicose Veins

Hæmorrhoids, and other Conditions. By RODNEY H. MAINGOT, F.R.C.S. Eng. London: H. K. Lewis and Co., Ltd. Pp. 100. 4*s.*

1. Dr. Meisen is a well-known authority on varicose veins, and his monograph is based upon the clinical experience gained in the investigation of some 3500 patients. The earlier chapters deal with the anatomy and physiology of the venous system of the lower limbs, and are followed by a very full account of the clinical and pathological features of varicose veins. Dr. Meisen is an enthusiastic supporter of injection methods, but believes that no drug yet available is suitable for every type of case. The five drugs which he advocates are: glucose, glucose and sodium salicylate, sodium salicylate and sodium chloride, and 25 per cent. and 30 per cent. sodium salicylate. No detailed argument is given in favour of the employment of such a variety of drugs, and except for the statement that the one used should depend upon the thickness of the vessel wall and upon the individual reaction, little is said about them. The author advises that the needle of the injection syringe should be inserted with the patient standing; the horizontal position is then assumed, the limb being raised somewhat and the injection given. Such a procedure sounds a rather risky one. If a light Esmarch bandage is put on the limb while the patient is standing and the horizontal position is assumed, entry to the vein is facilitated, the bandage can be removed, and the injection can be given into a bloodless vein with the limb in any desired position.

There are two other matters in which the author's practice is not altogether clear. He states spontaneous thrombosis can be differentiated from phlebitis occurring in varicose veins. Admittedly both conditions do occur, the one being an aseptic thrombosis secondary to endothelial damage, and the other a metastatic bacterial manifestation developing at a site of lowered resistance. But in most cases of "clotting" in a varicose vein it is almost impossible to separate clearly the two groups. Some lesions are obviously thrombotic, and others—a larger group—are frankly inflammatory with all the constitutional manifestations of a bacterial infection, together with very acute local signs; but in by far the largest group it is impossible to assess the importance of each factor. The differentiation would seem a vital one in view of the dangers of injection treatment of veins which have recently been infected.

The other difficulty concerns the use of the terms phlebitis and post-phlebitic. The former is used in its accepted sense, but the latter appears to be applied solely to a limb which has been the site of a deep venous thrombosis, such as occurs in the puerperium, as a post-operative phenomenon, or during the course of a specific fever. This use of the terms may lead to confusion, for while after phlebitis the limb soon returns to a healthy condition, after a deep thrombosis complete resolution is rare, and a condition of profound circulatory disturbance almost invariably persists. In view of the great importance of this disturbance a fuller consideration of its diagnosis and treatment should be given. A short chapter on the injection treatment of hæmorrhoids is included. The book is well and clearly written and the translation from the Danish has been well carried out.

2. This valuable and instructive book covers all aspects of diseases of the venous system, anatomical and clinical. The preliminary sections dealing with the anatomy and physiology of the venous system include an account of recent work on the mechanics of the varicose system in the lower limbs. The authors appear to accept this work. In view of its relation with what is here called "cyanose sous-malléolaire," their reluctance to accept the mechanical view of the production of varicose dermatitis and varicose ulceration is difficult to understand. They suggest that trophic elements play an important part in the production of these conditions. This theory is against the weight of the existing evidence. On the clinical side the various aspects of varicose disorders are well described, with the exception of varicose ulceration, of which the account is far too brief. The section dealing with the varied manifestations of phlebitis is particularly good. From the therapeutic aspect a balanced view of the various measures is maintained. It is recognised that there is a group of patients for whom injections have nothing to offer. For these other methods of relief must be sought.

This book should appeal to all who are seriously interested in diseases of the circulatory system, whether from the pathological or therapeutic aspect.

3. This small book is a compendium of current injection methods used for diagnostic, anæsthetic, and therapeutic purposes, and in its slender compass covers piles, prolapse, varicose veins, varicocele, hydrocele, local anæsthesia, the neuralgias, blood transfusion, intrathoracic lipiodol, and cistern puncture. It is impossible in a small compass to deal at all adequately with such a great variety of subjects. A more serious criticism is that the justifiable enthusiasm shown by the author for certain methods may well be interpreted by the reader as applying

to all injection methods. This book can only be regarded as an introduction to injection treatment, and it falls far short of an ideal guide for the practitioner.

4. This book deals with the treatment of varicose veins, ulcers, and hæmorrhoids, and includes a short chapter on the more debatable ground of the injection treatment of "other conditions." Lithium salic ylate with tutocaine (lithocaine) is held by Mr. Maingot to be the best injection medium, since it is simple, certain, and safe. He has abandoned the use of sodium morrhuate, owing to the high incidence of recurrence and recanalisation of the injected veins. This drug is evidently not maintaining the popularity which the good results claimed by earlier observers gained for it. For cases in which the varices are very large, or some refractory condition of the vein wall exists, "twin" injections of lithocaine and quinine-urethane are preferred, and are said to give very satisfactory results. This refinement, however, appears almost unnecessary, for when quinine-urethane is used with the "empty-vein" method thrombosis can be assured in 100 per cent. of the cases. A section on the treatment of hæmorrhoids is included, and provides a well-balanced view of the place of injections in the treatment of this common disorder. The book as a whole is clearly written and should be a useful guide to those requiring practical advice on injection therapy.

Those in search of advice and instruction regarding the various forms of injection therapy cannot complain of any lack of teachers.

Journal of Pathology and Bacteriology

THE May issue (Vol. XXXVI., No. 3) contains the following papers:—The Pathology of Sudden Death: a review of 198 cases "brought in dead," by T. H. B. Bedford (Leeds). The most frequent causes of death were disease of the coronary arteries, valvular disease, and aortic aneurysm (see p. 1082)—Pneumococcal Infections in Infancy and Childhood, by J. W. S. Blacklock and K. J. Guthrie (Glasgow). Fixed type infections are rare in infancy and become commoner in older children: in adults 73 per cent. of pneumonias were due to types I., II., and III.; in children only 9 per cent.; 85 per cent. of the bronchopneumonias were due to pneumococci of one kind or another, 68 per cent. of the empyemas and most of the cases of otitis media which was found in 21 per cent. of 2000 consecutive autopsies.—A Group of Aberrant Members of the Genus Corynebacterium Isolated from the Human Nasopharynx, by M. M. Barratt (London). Those who are engaged with the bacteriology of diphtheria are sometimes perplexed with curious pathogenic bacteria which resemble but are not identical with the diphtheria bacillus; this careful and thorough piece of work should help to clear up their difficulties.—The Quantitative Determination of Bacteriophage Activity and its Application to the Twort-d'Herelle Phenomenon, by G. Dreyer and Margaret L. Campbell-Renton (Oxford). A characteristic study of a method for the precise enumeration of the units of bacteriophage.—The Development of Agglutinins for Paschen Bodies in Experimental Vaccinia, by J. C. G. Ledingham (London). Rabbits produce agglutinins after infection in a manner compatible with the belief that Paschen bodies are the actual virus.—Rhinosporidiosis, by J. F. D. Shrewsbury (Birmingham). A well-illustrated account of this parasite.—The Hæmolysin Produced by Streptococci in Serum Media as an Antigen and its Effect on Antistreptolysin in vitro, by E. W. Todd (London). The hæmolysin produced in the presence of serum is antigenic but the antibody will not neutralise it.—Experimental Arterial Disease Produced by Cholesterol and Vitamin D, by C. V. Harrison (Cardiff). Areas of the aorta affected by a preliminary cholesterol sclerosis are not affected by a subsequent hypervitaminosis D, and vice versa.—The Biology of the Fermenting Sarcinæ, by J. Smit (Amsterdam). *Sarcina ventriculi* has no special relation to the stomach beyond being anaerobic; it is a ubiquitous organism in nature.—The Production of Toxins by *Clostridium welchii*, by L. E. Walbum and C. G. Reymann (Copenhagen). The medium should contain a moderate amount of dextrose and be prevented from becoming too acid.—A Large Inclusion Cyst in a Spleen, by H. E. Harding (Sheffield). A strange cyst lined with squamous epithelium.—A Cheap and Apparently Efficient Mounting Medium, by T. Shennan and W. A. Nelson (Aberdeen). Sodium acetate and liquid glucose are substituted for the potassium acetate and glycerin of the Kaiserling mixture.

NEW INVENTIONS

NEW FORM OF ABDOMINAL SUCKER

THE abdominal sucker here illustrated embodies a device which prevents omentum from blocking the suction tube. The outer sheath being a loose fit on the suction tube and having an air vent prevents any actual sucking force being applied to the holes in it. The fluid to be removed by suction runs in through the holes and is removed by the sucker tube. I have found it of the utmost value in emptying the

peritoneal cavity in cases of perforated ulcer, the sucker being passed through a stab wound into the pelvis and put in action while the operation wound is sutured. As much as two pints of fluid have been removed by this method while suturing. The instrument can then be replaced by the ordinary drainage-tube if thought necessary. If an increased suction pressure is required on the holes for a time the air vent can be closed with the thumb.

The instrument has been made for me by Messrs. Allen and Hanburys, Ltd., Bethnal Green, London, E.

CHARLES E. KINDERSLEY, F.R.C.S. Eng.

RENAL PEDICLE NEEDLE

THIS instrument has been devised to simplify the procedure of ligating the renal pedicle when the blood-vessels are tied in two separate portions. The length

of the shaft and the curve of the instrument are the special features which make it particularly serviceable for the purpose required.

Messrs. Allen and Hanburys, Ltd., are the makers.

H. P. WINSBURY-WHITE, F.R.C.S. Eng.

ST. GEORGE'S HOSPITAL.—A wireless appeal has been made for the immediate provision of £5000. Lord Greville, one of the treasurers, states that unless this sum is forthcoming one of the 23 wards will shortly have to be closed. Last year's expenditure shows a large deficit.

THE LANCET

LONDON: SATURDAY, MAY 20, 1933

A NEW ANALGESIC DRUG ON TRIAL

EVERY medical man who is faced with the problem of severe and continuous pain in cases of intractable disease must find it a task sufficient to tax all his skill and care, for while in the early stages the analgesics in adequate doses may be effective in giving relief, sooner or later the narcotics, opium or its alkaloid morphine, must be administered. Three difficulties have then to be faced: the undesirable side-actions of the opium alkaloids on the digestive tract and the respiratory centre, the necessity of increasing the dose beyond reasonable limits as tolerance develops, and the possibility of addiction. In recent times numerous attempts have been made in the laboratory to prepare drugs with the unique power of morphine of relieving pain but without any of its undesirable effects, and a number of artificial morphine derivatives have been recommended as substitutes for morphine, the best known of which is diacetylmorphine (diamorphine or heroin). Experience however has shown that, while heroin has a less constipating effect than morphine, it has a more powerful depressant action on the respiratory centre, and is just as likely to lead to addiction. In fact, in the opinion of competent observers, heroin is the most dangerous drug of addiction, and the heroin habit is a serious problem in the United States of America. In 1923 a new derivative of morphine, dihydro-morphinone hydrochloride, was brought out in Germany under the proprietary name of Dilaudid. Since then there have been many references in German clinical literature to its use as a therapeutic agent, although in this country few such observations have been recorded. Dr. O. LEYTON[1] used it in a series of cases and came to the conclusion that (1) unlike morphine, it is not necessary to increase the dose of dilaudid—suggesting that no tolerance to the drug is developed; (2) the drug does not cause constipation, nor is the appetite marred; and (3) in some cases euphoria is induced—suggesting the possibility of addiction, although Dr. LEYTON had not himself prescribed the drug long enough to decide whether addiction does in fact develop.

In America attention was drawn to the drug by a statement made by W. C. ALVAREZ in the proceedings of the staff meetings of the Mayo Clinic in August, 1932, that while dilaudid was much more potent than morphine in relieving pain no one, so far as he knew, had as yet become habituated to its use. This statement received wide credence and in the lay press accounts began to appear to such effect as: "It gives more relief from pain than morphin and prolongs the useful life of the patient with inoperable cancer, who can be up and working while taking the drug"; and "Dihydro-morphinone hydrochlorid. That's it. The Mayo Clinic at Rochester developed it, the word and the drug, for it means a drug, a pain relieving drug, five times as potent as morphine, as harmless as water, and with no habit forming qualities." As a result of this wide publicity the American Medical Association received through its council of pharmacy and chemistry numerous inquiries as to the accuracy of statements which, if true, were of first-rate importance, and Dr. NATHAN B. EDDY, of the department of pharmacology of the University of Michigan, was asked to investigate the general status of the alkaloid. In his preliminary report[2] Dr. EDDY reviews the published records of clinical experience and shows that, while there is general agreement that the drug is more powerful than morphine in relieving pain and has less tendency to produce constipation and other side-actions, there is a considerable divergence of opinion about the questions of tolerance and addiction, which though closely associated do not necessarily run parallel. While some observers report that they have not seen either tolerance or addiction, others are emphatic that they have had cases showing addiction and to a lesser degree tolerance, pointing out that just as individuals vary in their reaction to morphine, so they vary with regard to dilaudid. There seems justification for Dr. EDDY's conclusion that "Clinical trial has not shown that dilaudid is free from tolerance and addiction evoking properties, and, while side-actions such as nausea, vomiting, and constipation seem to occur less frequently after it than after morphine, the prolonged administration of dilaudid should be entered on with as much caution as would be exercised with morphine itself."

Reviewing the experimental work and his own pharmacological observations, Dr. EDDY shows that while there is clear evidence that dilaudid is a powerful analgesic, it can also depress the respiratory mechanism profoundly; furthermore the experimentally established ratio between the doses of morphine and of dilaudid required to produce certain specific and desirable effects is practically the same as the ratio between their toxic doses. Put simply, this means that dilaudid is a more powerful analgesic because it is more toxic. That is a point the general application of which is perhaps not fully appreciated by clinicians. If it is proved, for example, that a certain hypnotic A is effective in 3-grain doses, while another B is effective only in 10-grain doses, it is not a just argument to say that therefore A is a *better* hypnotic than B. All that can be said is that it is *more powerful*. In fact, as potency and toxicity generally run parallel, it is often true that B is really better than A for clinical use, because the margin of safety is, as a rule, much greater in the case of the drug with the larger dose. In view of these observations, no careful physician is likely to quarrel with Dr. EDDY's opinion that it would seem wise to delay the too

[1] THE LANCET, 1932, i., 835.

[2] Jour. Amer. Med. Assoc., 1933, c., 1031.

rapid spread of the clinical use of dilaudid until the knowledge of its pharmacological action is more complete.

PHYSIOLOGY OF THE PLACENTA

THE method by which the human placenta transmits nourishment to the fœtus and excretes the waste products of fœtal life is still a matter of controversy. Prof. OTTO GROSSER, of Prague, in a series of lectures delivered before the University of London and published in our own columns last week and this, deals with the question from the standpoint of comparative anatomy and embryology. In primitive types of placentation, such as that of the sheep, the chorion is apposed to an intact mucosa whose glands secrete the so-called "uterine milk," which is digested by enzymes secreted by the chorion and the products of digestion absorbed. It was formerly believed that all substances were transmitted by such vital absorptive and secretory activity, and the demonstration of digestive ferments in the placenta led to a comparison of its action with that of the intestine; HOFBAUER suggested that oxygen was transported by means of an oxidase secreted by "oxygen glands." In the higher types of placenta, however, the chorion is in direct contact with the maternal blood, so that diffusion is facilitated, and the digestive action of the chorion is less important once the ovum has become embedded and the hæmochorionic placenta has been formed. GROSSER emphasises the protective function of the placenta and believes that it has the power of altering maternal protein to form protein for the fœtus; even the human placenta might then be justly compared to the intestine. He points out that embryology began with a study of the development of the fowl and the rabbit, both of which show primitive features of reptilian type; it was later discovered that the rabbit is not typical of mammals and that the hedgehog would have been a better prototype of human development, in which some primitive features have been suppressed. It seems probable that placental physiology has undergone radical change during development from the epitheliochorionic to the hæmochorionic placenta. Modern biochemical research finds ample evidence of diffusion, but fails to confirm the theory of the digestive action of the higher types of placenta.

A useful summary of biochemical experiments on placental and fœtal blood in man and animals made by various observers in the last two years is given [1] by W. BICKENBACH and H. RUPP. Accurate information, as they justly emphasise, can be obtained only by taking blood directly from the vessels which supply the uterus, and from the arteries and vein in the umbilical cord. Determination of the oxygen and carbon-dioxide tensions in such specimens shows sufficient difference of tension between maternal and fœtal blood to account for the transference of the two gases by simple diffusion. Experiments on the concentration of salts have been mainly done with blood from the cubital vein, and with mixed arterial and venous blood from the cord. The results show that many salts, such as calcium, are present in higher concentration in the fœtal blood, suggesting a selective activity of the placenta—but the accuracy of the methods is open to question. The early fat deposits of the fœtus are probably formed by synthesis from glucose; but the fat deposited at the end of pregnancy has an iodine number the same as that of the depôt fats of the mother, and is therefore probably transmitted by the placenta. Amyl and methyl fats, which are split by the placental lipase but are not resynthesised by it, were injected by BICKENBACH and RUPP into the maternal circulation and were afterwards found unchanged in the fœtus. The fat probably passes into the placental cells by virtue of its solubility in the lipoids of which the cell membranes are composed. The opinion of HOFBAUER that the glucose in the maternal blood was built up into glycogen and stored by the placenta, to be given out to the fœtus again as glucose, is proved wrong by the observation that a rise of maternal blood-sugar is followed immediately by a corresponding rise of fœtal blood-sugar. Glucose is therefore transmitted by diffusion; the amount of glycogen in the placenta is too small to act as an intermediary product, or as a store of carbohydrate. RUPP was unable to confirm the statement of some observers that foreign proteins are transmitted by the placenta to the fœtal circulation. Antigens are not transmitted, but immune bodies—agglutinins, antitoxins, precipitins—do pass through, and passive immunity can be produced in the fœtus by injection of serum into the mother. These bodies are usually held to be protein in nature, but their chemical constitution is unknown, and recent research suggests that it may ultimately be possible to free them completely from protein.

Experiments on dogs by BICKENBACH and RUPP showed that injection of amino-acid into the maternal circulation was followed at once by rise of the amino-acid content of the fœtal blood, and the fall of concentration also corresponded. The amounts were always greater on the maternal side; the previous results, which gave a higher amino-acid content to the fœtal blood, were probably due to comparing the blood of the peripheral circulation of the mother with mixed arterial and venous cord blood. Polypeptides pass over unaltered. There is no evidence that the protein of the maternal blood is split by the placenta; albumin containing combined bromine was injected into the mother's blood and was not absorbed by the placenta. Most substances with small molecules seem to pass freely through the placenta; certain hormones are found to pass easily in either direction, depending on the relative concentration. It is probable that the maximum size of molecule which can be easily transmitted by diffusion is about that of cane-sugar. It has recently been shown that the placenta acts as a storehouse for the sex hormones, and possibly produces a hormone of its own. Apart from this, research has tended to show that the more highly

[1] Med. Klin., 1932, lvi., 1596.

developed types of placenta perform their main function by simpler means than do the primitive types. It now seems probable that the human fœtus obtains nourishment by the digestive action of the placenta only during embedding of the ovum, and in places where the placenta is growing and new villi are gaining attachment to the maternal tissues.

KETOSIS AND THE PITUITARY GLAND

THE present conception of ketosis rests largely on the work of P. A. SHAFFER, who showed that the oxidation of aceto-acetic acid in vitro by hydrogen peroxide could be greatly accelerated by addition of glucose. The reaction is a quantitative one and suggests that one molecule of triose—that is, half a molecule of glucose—is necessary for the oxidation of each molecule of aceto-acetic acid. SHAFFER'S experiments have served a useful purpose in providing a simple explanation of the appearance of ketosis in such conditions as carbohydrate starvation and diabetes mellitus, and in indicating the way to avoid or treat such ketosis. But metabolism, or life, is the resultant of so many interdependent variables that the attempt to express it in terms of simple chemical reactions must not be pushed too far; and closer inspection brings to light several residual facts about ketosis which refuse to remain corked up in the test-tube. Why, for instance, is ketosis more easily established in children than in adults? And why does a pregnant diabetic woman tolerate a fat-carbohydrate ratio which will cause ketosis in the non-pregnant? Some recent work by Dr. J. H. BURN and Mr. H. W. LING[1] throws light on these mysteries and reminds us that there are more ways of causing ketosis than by carbohydrate starvation. They find that the adult female rat tolerates an exclusively fat diet without excreting significant amounts of ketone bodies. But if such a rat is injected with a fresh extract of the anterior lobe of the pituitary gross ketosis develops. One of the known effects of such extracts is to cause the adult rat to start growing again—that is to say, to induce changes characteristic of youth—and they point out that the young rat restricted to fats produces so much acetone bodies that it becomes comatose. They go on to show that although pregnant rats can eat a fat diet without excreting ketones, there is a rapid rise in ketone output a few days before parturition—a fact which is significant in relation to the upset which takes place in the pituitary towards the end of pregnancy. More interesting still is the observation that in one of the impregnated rats the expected antenatal ketosis did not appear: neither did the expected litter, and further inquiry showed that, although the placental sites were recognisable in the uterus, the fœtuses had undergone resorption. From the investigators' standpoint this was a happy accident. Their conclusion, that the excretion of acetone bodies on a fat diet is dependent more on the hormones circulating in the blood than on the ratio of fatty acid to glucose in the diet, seems well founded, and their observations provide much food for thought.

[1] Quart. Jour. Pharmacy and Pharmacol., 1933, vi., 31.

ANNOTATIONS

BARBERS AND SURGEONS

THE Worshipful Company of Barbers, which stands seventeenth on the list of the City companies by seniority, has special associations for medical men, particularly for surgeons. Its history was reviewed by Mr. Weston, a Past-Master of the Company, at a dinner held on May 11th, when Mr. H. O. Serpell, Master of the Company, entertained a number of specialists of all branches of the medical profession at the Company's Hall in Monkwell-street. The Company played a large part in preserving and fostering medical knowledge towards the end of the Middle Ages. At the time of the granting of its first Charter, as the United Company of Surgeons and Barbers, it was not only the centre of medical knowledge in London but also a focus of social and artistic intercourse. In the reign of Henry VIII. London possessed practically no public health service, for with the dissolution of the monasteries the only hospitals of the country were disbanded. The King granted a second charter to the Company and gave it powers somewhat like those of the Ministry of Health, and it successfully took charge of the public health of London during a time of repeated pestilence. Pepys, said Mr. Weston, testified to the hospitality of the Company and to its wonderful collection of silver and pictures. Owing to the escape of the Hall from destruction in the Great Fire—an immunity which it shared with very few important buildings—these treasures were preserved. Pepys spoke of a genial gathering including many doctors of physic; but during the next century much friction took place between the surgeons and the barbers, and finally in 1745 the surgeons seceded. Mr. Weston recounted that they had not been happy in their freedom, and before long their company had practically disappeared, its only representative being a bedridden Master and a Clerk who ought to have been in gaol. From the ashes of this Company the College of Surgeons had risen, and members of that College, forgetting the bitterness of the past, could now see that the Barbers' Company had taken good care of what had once been the common treasures and traditions of the two professions. The present occasion, he said, was the first time on record since the separation that the Barbers' Company had entertained members of the surgeons' profession. Lord Moynihan, in replying to the friendly welcome of his old friend the Master, said that he and his fellow-surgeons had come to bury the hatchet—not in the cranium of the nearest barber, as his surgical ancestors would have wished, but in oblivion. The Arris and Gale lectureships at the Royal College of Surgeons were a reminder of the ancient beneficial association of the two professions. Lord Horder proposed the health of the Company, and Mr. Weston replied.

ACCIDENT PRONENESS

WE are now coming to realise that most accidents are due to personal factors rather than to uncontrollable chance. Statistical research has plainly indicated that accidents do not simply obey the laws of chance,

and that proneness to accident exists as an unfortunate characteristic in the personal make-up of some 25 per cent. of the ordinary population. It is this quarter which is responsible for three-quarters of the accidents. Such individual susceptibility shelters a motley host of motives and factors which are difficult to separate and measure. Nevertheless, investigation of industrial accidents is steadily being pursued by the Industrial Health Research Board to detect these factors. Age, experience, health, and conditions of work are all known to affect accident-rates; and now a new report [1] has been issued throwing further light on the intricate problem. Data covering several years obtained from various groups—dockyard apprentices, naval artificers, and factory juveniles—with similar age ranges and significantly different accident-rates, were intensively studied by statistical methods. An association is disclosed between a low accident-rate and good performance at certain æstheto-kinetic tests, as distinct from intelligence tests; for no significant relation was found between intelligence and accidents in any of the groups. The apprentices, however, were all picked by intelligence tests; hence intelligence in other groups might prove to be one of the factors in accident proneness. On the other hand, those who were really bad at the tests had an accident-rate higher than those who were really good. Thus one factor in accident causation, although possibly not the most important, has been isolated and roughly measured. A simple and practical method for lessening accidents is to remove after the first year those who prove to have a high accident-rate on being exposed to risk, and so to select workers with low accident proneness. A more effective method would be not to expose to risk the 25 per cent. of candidates for work who do worst at the tests, while a group of workers with the lowest degree of accident proneness could be obtained by selecting only the 25 per cent. who do best at the tests. The stage has not yet been reached where accident proneness among motorists can be detected by tests; but much may be done to-day by eliminating those who betray their proneness by sustaining multiple accidents.

ALLEVIATION OF PAIN IN OSTEO-ARTHRITIS

EVEN though it may not influence the actual changes occurring in the joints, any treatment that will relieve the pain of osteo-arthritis deserves consideration. For even the severe disability caused by this condition is often less distressing to the patient than the sleepless nights associated with it. The satisfactory results obtained by means of deep X ray therapy in relieving the symptoms of osteo-arthritis have been reported by many observers, but the series of 1500 cases treated by Dr. G. von Pannewitz, of Freiburg, deserves special attention, in view of the large numbers on which his observations are based.[2] Dr. Pannewitz draws important conclusions from a study of his results. The age of the patient makes little difference to the likelihood of benefit from X ray treatment. Improvement is slightly more probable in arthritis of the extremities than in arthritis of the spine, though the difference is not great. The duration of the condition before treatment has a considerable influence upon the prospect of improvement, the more recent the disease the better the prognosis. The prospect of improvement cannot be correlated with the severity of the changes in the joints as shown by X rays, except in the spine, where the more pronounced the changes the less hope there is of improvement. In the joints the X ray appearances during treatment may remain unaltered or may become more abnormal, without any corresponding increase in symptoms. Dosage and time interval between treatment vary for different joints. For the spine Dr. Pannewitz recommends 20 per cent. of the skin erythema dose, using 180 k.v., 4 milliamp., and filter of 0·5 mm. copper and 1 mm. aluminium, at intervals of one week. He records improvement in 94 per cent. of cases, of whom 46 per cent. became free from pain. Of the total 1500 patients treated, some of whom were presumably not given the optimal dosage, 85 per cent. improved, 30 per cent. being made symptom-free. These figures suggest that deep X ray therapy is certainly worth a trial in cases of osteo-arthritis.

[1] E. Farmer, E. G. Chambers, and F. J. Kirk: Tests for Accident Proneness. Industrial Health Research Board. Rept. No. 68. H.M. Stat. Office. 9d.
[2] Deut. med. Woch., 1933, lix., 614.

BROUGHT IN DEAD

IN the 21 years 1910–30 198 persons were brought dead to the Leeds General Infirmary, besides those killed by mechanical injury or suicide. Dr. T. H. B. Bedford's analysis [1] of the post-mortem examinations yields interesting and rather surprising results. Apoplexy accounted for only 3 cases, and is evidently not so common a cause of "sudden" death as is often supposed. More informative is the fact that disease of the coronary arteries either caused death or was a likely contributory cause in 104 cases —53 per cent. of the total and 65 per cent. of those over 40 years old. In 63 cases atheroma of the coronary arteries was the definitive lesion, in 13 syphilitic aortitis involved the mouths of the coronary vessels, and in 4 a fibrous heart was found. In addition, 21 of the 35 examples of valvular disease showed coronary disease as well and in 3 other instances it was associated with various other conditions. Atheroma, calcification, and thrombosis of the arteries of the heart have been known for a long time: it was on Oct. 16th, 1793, that John Hunter was irritated by his colleagues at St. George's and dropped down dead, and the "bony tubes" of his heart were soon afterwards described by Home. But it is only in relatively recent years that the clinical diagnosis and the post-mortem recognition of myocardial infarction have been so improved that its importance as a cause of cardiac pain and unexpected death has come to be recognised. The more carefully autopsies are made, the more frequently will it be recognised as the effective lesion in those who come dead to hospital without histories or clinical examination.

SURGERY OF THE THORACIC ŒSOPHAGUS

WHILST diverticula of the pharynx are common enough for most surgeons of some experience to have had opportunities to operate upon the condition, diverticula of the thoracic œsophagus are exceedingly rare. Many clinicians of standing must never have met with an example, and will therefore read with interest the record of one such case, published last week (p. 1009), successfully treated by surgery and Mr. Barrett's review of what knowledge exists and the surgical problems which arise. It is not so much that the œsophagus in the thorax is inaccessible but that the factors of safety in its surgery are not yet known. Whether it be exposed transpleurally as was done in this case or through the posterior mediastinum as recommended [2] recently by A. Parcelier

[1] Jour. Path. and Bact., 1933, xxxvi., 333.
[2] Bordeaux Chir., January, 1933, p. 25.

and A. Chenut for the removal of such pouches, the very serious and at present very uncertainly surmountable risk of sepsis remains. That this may not be so great as in operating on a pouch as on an ulcerating carcinoma Mr. Barrett points out. Nevertheless the surgeon cannot yet with any confidence proceed to open the thoracic œsophagus by either route without justifiable misgivings as to the result. The historic resection of the thoracic œsophagus for carcinoma by Torek has demonstrated quite clearly that survival, after such operations, for many years is a surgical possibility; yet with an apparently identical technique hundreds of subsequent trials have met with nothing but failure, nor has Torek been able to repeat his success. The few cases of removal of pouches of the thoracic œsophagus with good results serve further to emphasise the feasibility of such procedures. But unless they act as a spur to surgical research they will have served no more general purpose than the relief of individual sufferers. The control of the spread of a localised infection and the promotion of the union of the non-peritonealised œsophageal wall are two problems whose solution would do much to open up the field of œsophageal surgery. Like many other surgical advances this will depend upon more exact physiological and pathological knowledge.

DEXTROSE THERAPY IN HEPATIC DISEASE

THE presence of adequate amounts of glycogen in the liver has been shown to bear an important relation to many of the functions of that organ. Resistance to toxins is much impaired when liver glycogen is depleted, and the metabolism of pigments also becomes disturbed, as is shown by increased urobilinuria when the carbohydrates of the diet are reduced below a certain level. There is also evidence that the defect in carbohydrate storage which results from prolonged starvation is due to some extent to the low glycogen content of the liver, C. von Noorden and S. Isaac [1] claiming that this reduction in tolerance is due to diminished glyconeogenesis—the rate of which depends on the existing glycogen supply. Similarly it has been found that the functional capacity of the damaged liver can be improved by maintaining its glycogen content at a high level, and in 1908 A. P. Beddard, in our columns, suggested the administration of dextrose in the treatment of delayed chloroform poisoning. Since then this sugar has been widely used in the treatment of hepatic disease, and in some clinics for venereal diseases it is always given as a prophylactic before the intravenous injection of arsenic. Administration of insulin with the dextrose, to increase the deposition of glycogen when the liver is damaged, has also been practised, but its value is open to question. T. L. Althausen [2] in fact claims that, in experimentally damaged livers at any rate, the addition of insulin may have the opposite effect, and actually reduce their glycogen content. The same investigator [3] has now carried out a series of observations on patients with subacute or chronic disorders of the liver who were to undergo abdominal operation, and were given a course of treatment with dextrose, orally or by intravenous infusion. Small pieces of liver were removed early in the operations and were compared with others from similar cases in which there was no previous preparation with dextrose. The treated patients were divided into those who received 50 or 100 g. dextrose by mouth three times a day for one or two weeks, with an intravenous infusion 12 hours before operation, and those who had two intravenous infusions of 500 to 1000 c.cm. of 10 per cent. dextrose daily for from one to five days, the last injection being given on the morning of operation. Whereas the livers of patients who got no dextrose were almost devoid of glycogen, closely resembling the liver of a rabbit with a glycogen content of only 1·5 per cent, those of patients who had large amounts by mouth were filled with glycogen, and corresponded in appearance with the liver of a rabbit with about 11 per cent. Those of the "unprepared" patients showed narrow parenchymatous cells with darkly staining cytoplasm, and the sinusoids and bile capillaries were wide; where, on the other hand, large amounts of dextrose had been taken by mouth, the hepatic cells were so distended with glycogen as to cause compression of the blood and bile channels. Only moderate amounts of glycogen were found in the livers of those who had had their dextrose by intravenous injection. Althausen concludes that the severely damaged liver does not lose its capacity to store glycogen if sufficient amounts of exogenous dextrose are provided; unless oral administration causes nausea and vomiting, dextrose is rapidly assimilated by this route, and larger amounts can be given than is practicable by repeated intravenous injection. The method recommended is by means of a high carbohydrate diet with additional feedings of 50 to 100 g. of dextrose in fruit juice three times a day. When, however, the patient's condition necessitates the use of the intravenous route, continuous infusion of dextrose solution through a cannula in the antecubital vein for several days is most valuable. In this way large amounts of dextrose (500 g. or more in the 24 hours) can be given without undue strain on the organs of assimilation. The inflow must be stopped gradually to prevent the danger of "insulin shock."

[1] Die Zuckerkrankheit. und ihre Behandlung, Berlin, 1927, p. 33.
[2] Ann. Internal Med., 1932, vi., 193.
[3] Jour. Amer. Med. Assoc., 1933, p. 1163.

THE CAPILLARIES IN RHEUMATISM

THE fact that patients suffering from rheumatic disorders commonly show disturbances of the circulation is, it is thought, by no means accidental; and some regard atrophic arthritis as a neurovascular disease.[1] The bearing of this association on ætiology was the official subject of the congress on rheumatism held at Liége in 1930, and was recommended as appropriate for further investigation. Since then there have been many studies of the surface temperature of the skin of rheumatic subjects, the work being made possible by development of the capillary microscope and of the thermo-electrical method of measuring skin temperature. Recently Joseph Kovacs, with the collaboration of Irving S. Wright and A. Wilbur Duryee,[2] has examined, before treatment, 80 cases of chronic arthritis, 40 of the rheumatoid and 40 of the osteo-arthritic type. The nail-bed was the part chosen for study and in each case the size, number, and form of the capillaries was observed, together with the rate and character of the blood flow and the surface temperature; in addition a sedimentation test was done on each case. The patients were divided into age-groups because of the changes which naturally appear with advance in age. Classification of the capillaries presented some difficulty, and the cases were therefore put into definite groups only if over 70 per cent. of the capillaries were of a specific type; also several capillary fields in different fingers were examined before a definite conclusion was arrived at. The

[1] See THE LANCET, 1932, i., 1317.
[2] Jour. Amer. Med. Assoc., April 1st, p. 1018.

blood flow was regarded as slow if it was possible to see the cells distinctly passing through the vessels. It was found that in 30 per cent. of the rheumatoid arthritic class there was a decrease in the number of capillaries, particularly in the region of swollen joints. In 52 per cent. the capillaries were small and constricted. There was slow blood flow in 65 per cent. of the cases, the capillaries were tortuous in 35 per cent., and the surface temperature was subnormal in 52 per cent. In the osteo-arthritic class the capillary picture was somewhat different. A decrease of capillaries was found only in fingers with pronounced Heberden's nodes; the size of the capillaries was small in 27 per cent.; slow blood flow was found in only 52 per cent., while the frequency of tortuous capillaries was increased to 60 per cent. The surface temperature was subnormal in half of the patients. Commenting on their results Kovacs and his collaborators say that the increased tortuosity of the capillaries noted in osteo-arthritics as compared with rheumatoid patients was probably physiological and due to the higher average age; there was no apparent relation between the degree of tortuosity of the vessels and the severity of the clinical symptoms. The patients with slow blood flow for the most part had severe clinical symptoms and also a low surface temperature. Further, a parallel was found between the rate of blood flow and the sedimentation test, for in all cases with a high sedimentation-rate a slow blood flow was found; and this suggests that the rate of flow was influenced somewhat by the viscosity of the blood. The general conclusion was reached that although changes from normal do occur in the skin capillaries and skin temperature in many cases of rheumatoid and osteo-arthritis, these cannot be considered uniformly responsible for the pathological changes found. Furthermore it was not established that the condition of the capillaries in the nail-bed resembled the condition of the capillaries supplying the joints.

It will be recalled that last September Dr. A. A. Bisset and Mr. A. Woodmansey contributed to our columns some observations which led them to suppose that in most if not all cases of well-established rheumatism the capillaries are in a spastic state.

THE ALLERGIC STATE

THE West London Medico-Chirurgical Society devoted its last meeting, on May 5th, to a discussion on allergy. Dr. G. H. Oriel defined this as a state in which a person otherwise normal reacted to certain common substances in an abnormal manner. Any protein abnormal to the subject might give rise to sensitisation, he said; and in cat asthma, for example, the symptoms were provoked by a foreign protein (exogenous allergy). It had recently been shown that on slight modification—e.g., by the addition of a molecule of iodine—the protein molecule might evoke a different reaction, and changes of this kind might give rise to an endogenous allergy. Supersensitiveness to foreign protein could be demonstrated by skin tests in about half the cases of asthma, and in the other half the condition was presumably due to an infection. Specific therapy in allergy had for its object the production of immunity by neutralisation of the antibodies, and was carried out by giving injections of the antigen. It was a remarkable fact that allergic symptoms showed considerable improvement during pregnancy, during infections, and when the patient was suffering from trauma, for instance, after operation. Sir William Willcox said it was extraordinary how small an infective focus might give rise to widespread and serious conditions in the body; it might be that the streptococcus or its products combined with the protein and produced some allergic substance, as Dr. Oriel had suggested. Dr. Finkelstein thought that the conception of sensitisation by endogenous substances rested upon very little support, and doubted whether it was true that allergics improved after trauma. Dr. H. H. Sanguinetti referred to recent German publications in which the allergic reaction was discussed in relation to non-proteins, such as arsenic and potassium iodide; on the continent, at any rate, they did not limit the allergic manifestations to foreign proteins.[1] Towards the close of the discussion Dr. Gerald Slot mentioned that during the last four or five years he had carried out eight post-mortem examinations on patients who had died in allergic states, and had found it extraordinarily difficult, both from macroscopic and microscopic pathology, to give any definite reason as to why they had died at all. All one saw was that the organs were congested, but there was no obvious reason for death.

X RAY THERAPY IN HÆMOLYTIC ICTERUS

THE established value of splenectomy in the treatment of hæmolytic icterus, and the fact that the operation is usually well supported in older children and young adults, has tended to direct attention away from other possible lines of treatment. The number of cases of the disease reported in infancy and early childhood is still relatively small, but wider recognition of the condition and the routine examination of affected families may be expected to reveal many more. For these an alternative method of treatment that will at least make possible the postponement of splenectomy until later childhood is certainly desirable. The application of X rays to the spleen has been tried by several workers with, on the whole, unfavourable results; in some cases, however, definite improvement has been claimed, and Dr. Giulio Dondi now reports [2] two cases with amelioration of symptoms following this method of treatment. The first patient was seen at the age of 5 months (in December, 1930) on account of a digestive upset, and it was then noted that there was a subicteric tint of the skin and scleræ, that the liver was palpable one and a half fingers' breadth below, and the spleen at the level of, the costal margin. Four months later the infant suffered from a hæmolytic crisis, becoming definitely jaundiced and anæmic, with a hæmoglobin content of 40 per cent., and 13 nucleated red cells per 100 whites. The fragility of the red cells appeared to be normal at this time (hæmolysis beginning at 0·48), but later increased definitely. The urine showed a strongly positive Schlesinger's reaction for urobilin, and the absence of bile pigments with a negative Hay's test. The direct van den Bergh reaction was weakly positive, and the immediate indirect reaction strongly positive. The infant was treated with a preparation of liver and injections of arsenic, and five applications of X rays to the spleen beginning with an eight minute exposure and a dosage of 80 kw.; 2 m.a.; filters 0·5 mm. zinc and 3 mm. aluminium. The infant's general condition and anæmia slowly improved, with a rapid disappearance of the jaundice; it remained free from symptoms, although the blood still continued to show increased fragility, and a considerable number of nucleated red cells, whilst the spleen was palpable three-fingers' breadths below the costal margin two years after the first treatment.

[1] A case of asthma attributed to chromium was reported in THE LANCET of July 23rd, 1932, by Dr. H. Joules.
[2] La Ped. del Med. Prat., 1933, viii., 298.

The second case was that of a boy of 9, who first came under observation in September, 1931, when the spleen was greatly enlarged and the liver palpable two fingers' breadths below the costal margin. He then had a hæmoglobin content of 38 per cent., and 1,700,000 red cells per c.mm. which were of increased fragility, hæmolysis beginning at 0·58 and being complete at 0·42. He was given similar treatment with an initial exposure of ten minutes and a dosage of 180 kw., 2 m.a., with 0·5 mm. zinc filter; a course of ten treatments was given, and subsequently repeated. In this case the improvement in the general condition was rapid, and was maintained, although the size of the spleen and liver was unaltered and the fragility of the red cells still increased. The period of observation in these two cases is not yet long enough to exclude the possible recurrence of hæmolytic crises, but the method of treatment would certainly appear to warrant further investigation. If hæmolysis can be checked and the consequent over-action of the bone-marrow relieved, clinical improvement is to be expected, although the fragility of the red cells may remain unchanged.

POPULAR MEDICINE

THE instruction of the people in medicine, in the understanding of its principles, in the meaning of its procedures and in the outcome of its labours is a task which many writers have attempted and are attempting with a success which varies in accordance with the schemes laid down for themselves by the writers, and with their qualifications to write. As a rule some knowledge and literary skill is needed to make the work readable, but the readable disquisition is not always useful information. We have all read essays sometimes signed by medical men and at other times purporting to draw information from medical men, in which the public have been urged on no logical grounds to do this or that lest they suffer for negligence; have been asked to see danger in practices where none exists save that of over indulgence; have been supplied with unproven theories in the guise of unquestioned facts; and indeed have been given so much that is not worth reading that any real contribution to knowledge afforded by the author have been smothered. It is a pleasure to receive a book of popular medicine written by a medical man where conformity to scientific truth accompanies useful and amusing reading.[1] Dr. Mario Musella, the editor of *Riforma Medica*, proves that it is possible to impart a great deal of sound medical knowledge in simple phraseology, to be interesting and amusing in so doing, neither to create false hopes or unnecessary fears, while not stating theories as if they were facts or assumptions as if they had been proved. He is not a newcomer in this field of literature, for he has in two previous books proved that he can bring before the public in general in an intelligible form sound medical and hygienic knowledge. His latest essays are of a more rambling character; their subjects appear to be selected quite at random, and they are arranged in no order. He has wise things to say on many of the questions which are under popular discussion, and he says these things as they occur to him. Thus we have chapters on the treatment of diabetes, the principles of healthy diet, the value of opium, the universal fall in birth rates, the ingestion of tea and tobacco, the changing face of disease, the use and abuse of opium, the undeserved bad character of tomatoes, the value of mountain air and rest, and the real significance of blood pressure. These are subjects which he knows to be under frequent lay discussion, and he may have had reason to think that some of the most dogmatic debaters are not the most accurately grounded. Dr. Musella adorns his teaching of medicine and hygiene with amusing historic references and biological allusions, and has taken pains that his arguments should be easy to follow. For the Italy of to-day is intensely interested in the questions of hygiene and public health.

[1] Annie Malanni. By Mario Musella. Bologna: L. Cappelli. 1933. Pp. 214. L.8.

QUININE DISTRIBUTION IN INDIA

OUR Calcutta correspondent lately mentioned difficulties arising out of the Indian Government's quinine policy. This was debated at the December conference of Indian research workers, and an account of the discussion may be found in the proceedings.[1] Mr. C. C. Calder, director of the botanical survey of India, pointed out that the present stock of quinine with the Government of India was 400,000 lb., and Lieut.-Colonel J. A. Sinton urged the necessity of devising means whereby treatment could be placed within the reach of the millions of malarial patients. Major-General (now Sir John) Megaw, the chairman, said that the Government of India was unlikely to give or sell the quinine to local governments at less than the prevailing market price for various reasons. Some believe that the Kina Bureau would probably manage to stop sales on such a scale; that the Indian Government refused to sanction a proposal for the selling of the stock at Rs.20 per lb. instead of at the present market price of about Rs.26 (the original buying price was Rs.12) and the giving of the balance as a grant to the Indian Research Fund Association, because this was against the rules of the Finance Act; and that, if distributed free, quinine would probably be bought up by dealers and sold adulterated at a great profit. In the meantime the quinine stocks may soon depreciate in value by alteration in the exchange value of the rupee, so that so far as quinine is looked on as locked-up capital, this may largely disappear. The suggested way out of the difficulty, to which our correspondent referred, was through an attempt to popularise treatment by means of a commercial agency, skilled in advertising and selling and allowed to make a profit. But to this some local governments have objected on the ground that it would interfere with their own sales. Mr. Calder pointed out that the stock of quinine had been bought by the Government of India for purposes of public health and not for the making of a profit, and that if not so used the responsibility rested with that Government. The situation is indeed complicated, but this at least is clear: profit cannot be placed before public health.

THE ceremonies in connexion with the centenary of the University of Zurich were held at the close of April when a small number of honorary doctorates were awarded. The recipients were mainly attached to German universities, but among them was Sir Frederick Hobday, principal of the Royal Veterinary College, whom we congratulate upon this recognition of his work.

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[1] Tenth Conference of Medical Research Workers. Simla: Government of India Press. 1933.

ROYAL BUCKINGHAMSHIRE HOSPITAL.—This Aylesbury hospital of 80 beds received last year 1461 in-patients, the largest number on record; in 1922 the figure was only 556. The contributory scheme produced £4541, and an appeal for eggs brought an "almost overwhelming" response in the form of an ample supply for a year.

SPECIAL ARTICLES

LATENT IMMUNISATION IN MEASLES

EVIDENCE OF ITS EXISTENCE

BY PERCY STOCKS, M.D., D.P.H.

READER IN MEDICAL STATISTICS IN THE UNIVERSITY OF LONDON AT THE GALTON LABORATORY, UNIVERSITY COLLEGE

IN a Study of the Epidemiology of Measles,[1] published in 1928, it was pointed out that most of the epidemic phenomena of measles in London appeared to be consistent with the hypothesis that a temporary latent immunisation of a large proportion of the children who escape attack occurs during epidemics, and that the immunity so gained is mostly lost in two or three years. The implications of this view of the cause of the biennial periodicity which is so characteristic of London epidemics were further discussed in two papers in 1930.[2] The mere fact that this theory seems to provide a more satisfactory explanation of the epidemic behaviour of measles than any other theory at the present time does not, of course, constitute a proof that it is true. The evidence so far presented that temporary immunity is produced in children who have been in contact with infection and escaped attack cannot be regarded as by any means conclusive. In the absence of any other method of measuring immunity to measles, reliance has to be placed upon comparison of the behaviour of contacts who have escaped attack with the behaviour of control groups of children when both groups are subjected to risk of attack in subsequent epidemics, and after various intervals of time from the exposure to infection, which according to the theory should have produced immunity in the contacts. Such a comparison necessarily involves many statistical difficulties and possible fallacies, and it will only be possible to establish the theory on a firm foundation, or to disprove it, by repeated statistical experiments of this kind, selecting different kinds of control groups. The aim of the present paper is to record the results of two new investigations on these lines, and to point out a fallacy which has been revealed in one of the calculations in the original memoir.

ATTACK-RATES IN ESCAPED CONTACTS AND IN CONTROLS

In Section 5 of the original memoir [1] a comparison was made between attack-rates during the 1926 epidemic in St. Pancras in children of various ages under 10 who had been exposed to infection as home contacts three months before and 18 months before, and simultaneous attack-rates in three control groups. The first control group consisted of all children in the borough of the same ages who had never had measles, and calling the ratio to the attack-rate in these children x_1 for contacts exposed 3 months before, and x_2 for contacts exposed 18 months before, it was found that $x_2 = 2{\cdot}5\ x_1$ approximately, which seemed to indicate a degree of protection after 3 months which had diminished after 18 months had elapsed. The second control group consisted of all children of the same ages who had never had measles and who lived in houses where a measles case occurred at *any* time during 1924–27, and calling the ratios to the attack-rate in these children y_1 for contacts exposed 3 months before, and y_2 for contacts exposed 18 months before, it was found that $y_2 = 3{\cdot}5\ y_1$, supporting the previous result.

The third control group consisted of all children who had never had measles and who lived in houses where a measles case occurred either during the period of exposure or during the period of immunity testing, and for these similar z_1 and z_2 ratios were found, giving $z_2 = 5\ z_1$. It has been courteously pointed out to me by Dr. W. H. Frost and Dr. A. W. Hedrich, of the Johns Hopkins University school of hygiene and public health, that there is a fallacy inherent in the use of the z ratios, and even if there were no latent immunisation it would still be expected that by virtue of the mode of selection of these groups alone z_2 would not be equal to but greater than z_1. This fallacy I had not perceived, and must now admit that the z ratios cannot be relied upon as evidence.

The x ratios are not subject to this fallacy, and the y ratios could only be affected to a slight degree if at all. Moreover the control groups must, if the hypothesis be correct, themselves contain a large proportion who were immunised and subsequently lost their immunity, and therefore the observed falling off in the values of x and y might be expected to be much greater if a control group entirely unexposed to a recent epidemic could have been used. It appears to me, therefore, that unless some other explanation can be given for the relations $x_2 = 2{\cdot}5\ x_1$ and $y_2 = 3{\cdot}5\ y_1$, the data indicate that out of 100 contacts who escaped, *at least* three times as many would be attacked when exposed to a given degree of infective risk after 18 months as would be attacked when exposed to the same degree of infective risk after 3 months.

PROPORTION OF LATENT TO CLINICAL CASES

In place of the somewhat difficult calculation on p. 381 of the 1928 memoir to ascertain what proportion of latent to clinical cases would account for the statistical results, which is made unreliable by the fallacy in the z ratios, the following simpler method of reasoning is suggested. According to Table VIII. of the memoir, of 1502 contacts exposed to home infection during 14 months from April, 1924 onwards, 386 were attacked in the 1926 epidemic, after a mean interval of 18 months from exposure, and had they been exposed to the same risk after 3 months it is to be expected from the comparison with the controls that not more than one-third of 386, or 129, would have been attacked. If the attack-rate rises uniformly with time after exposure, about 100 must have failed to acquire immunity, and of the remaining 1400 immunised children about 300 would presumably have lost their immunity by the beginning of the next epidemic and been attacked in that epidemic. Of the remaining 1100, according to the theory some unknown number N must have lost their immunity at the end of two years and escaped attack again (many of them by regaining it) during the second epidemic, when they must have been subjected to about the same risks as the general population of children. The balance of $1100 - N$ must have retained their immunity till the next epidemic and escaped attack by virtue of it.

If $N = 1000$, a fraction 100/1400 retained their immunity to the next epidemic, and the ratio R of latent to manifest attacks becomes $1000/300 = 3{\cdot}3$. If $N = 900$, the fraction retaining immunity would be 200/1400, and $R = 900/300 = 3{\cdot}0$. If $N = 800$, the fraction retaining immunity would be 300/1400, and $R = 800/300 = 2{\cdot}7$. The fraction retaining immunity for two years must be small, and the ratio R must be fairly large if the theory is to account for the

epidemic periodicity, hence if $R=3$, and if this applies also to the general population of children, we should have about 4000 cases and 12,000 latent attacks in an epidemic in the population of 36,000 children under 10, and a residue of about 2000 remaining immune from the last epidemic, that is to say, about 18,000 out of 26,000 estimated as never having had measles, would be immunised or attacked, or about three-quarters of these children. This could account for the exhaustion of the epidemic, seven out of every nine children in the total population being protected by the end of the epidemic.

Nine months after the end of an epidemic there would be about 11,000 children who had had measles and 8000 who were temporarily immune, or more than half of the population of children would be protected, which might easily suffice to prevent an epidemic starting. A year later there would have been added about 4000 susceptible children born and 6000 who had lost their immunity in the year, about 4000 permanently immune having passed out of the population concerned by reaching the age of 10.

According to this estimate the ratio R of latent to clinical infections would be somewhat lower than the value 4 to 5 arrived at from the z ratios, but otherwise the theory is not appreciably affected. It means that to every 10 clinical cases of measles about 30 children in a densely populated area are assumed to become temporarily immunised, of whom about 25 lose their immunity again before the next epidemic.

The above reasoning is not to be taken as a proof that this is the correct interpretation of the facts, but only as a demonstration that it is possible in this way to give a simple explanation of the observed changes in the subsequent attack-rates amongst escaped contacts which is consistent with the other epidemiological facts regarding infectiousness and periodicity. It may seem to some that a hypothesis of far-reaching implications has been constructed upon rather slight foundations, but it is only by constructing theories and then testing them out by experimental and statistical methods that progress is likely to be made in these fields of epidemiology. If in the course of such further inquiries the theory fails to answer to the tests, there is at least the probability that a clue to what is the true explanation may emerge in the process, and if so the work and discussion which have taken place around the discarded hypothesis will not have been wasted.

NEW DATA OF SUBSEQUENT ATTACK-RATES IN ESCAPED CONTACTS

As a further test of this method of comparing subsequent attack-rates amongst contacts who have escaped measles with simultaneous rates in all children who have not previously had measles, the behaviour, during the first half of 1929 and the first half of 1930, of home contacts numbering 1890 who had been exposed to infection during the 1928 epidemic in St. Pancras was ascertained. This was done by sorting the notification records in the three periods into streets and houses, and finding how many of the escaped contacts stated to have never had measles were recorded as attacked at the same address in the subsequent periods. By this method any of these children who had died or removed during the interval would be missed, and the longer the interval the more attacks would be missed, so this would tend to lower their apparent attack-rate after two years in comparison with that after one year. Hence if it is found that after one year the apparent attack-rate is X_1 times that in the control population during the same months, and after two years it is X_2 times that in the controls in the same months, the ratio of X_2 to X_1 will be rather *less* than the real ratio.

Of the 1890 contacts under 10 years of age exposed during the six months from December, 1927, to May, 1928, 990 were attacked before Dec. 31st, 1928, leaving 900 at risk. Of these, 8 were subsequently attacked during the first half of 1929, and 498 were attacked in the general population of susceptibles, estimated at 24,000, in the same period, giving $X_1=8\times24{,}000/(900\times498)=0{\cdot}428$. Of the 892 left at risk at the end of 1929, 88 were attacked during the first half of 1930, and 3266 were attacked in the general population of susceptibles, estimated at 26,000, in the same period, giving $X_2=88\times26{,}000/(892\times3266)=0{\cdot}785$. The real ratio of X_2 to X_1 must therefore be something more than $0{\cdot}785/0{\cdot}428$ or $1{\cdot}84$. Estimating it at not less than two, this means that of 100 contacts who escape immediate attack, twice as many at least would be attacked after two years as after one year if the risk were the same, and some must presumably have lost their immunity during the second year. The *absolute* values of X_1 and X_2 are not comparable with the values of x_1 and x_2 in the 1928 memoir, which related to the 1926 epidemic, for neither the following up method employed with the children nor the records of the families themselves were so complete in the later years, but the ratio of X_2 to X_1 can be compared with the ratio x_2 to x_1 without apparent objection.

Since x_1 related to an interval of 3 months and x_2 to an interval of 18 months, and $x_2=2{\cdot}5\,x_1$, whilst X_1 related to an interval of one year and X_2 to two years and $X_2=2\,X_1$, the combined results would be consistent with susceptibility rates of the following orders on an arbitrary scale :—

After interval of..	.. 3 months.	.. 1 yr.	.. 1½ yr.	.. 2 yr.
Susceptibility	4	.. 7	.. 10	.. 14

and these would show an approximately regular increase with lapse of time. Thus if it is supposed on the basis of the calculation in the preceding section that about one-seventh retain their immunity after two years, then starting with 16 immunised children 12 would be immune after three months, 9 after a year, 6 after one and a half years, and 2 after two years' interval.

It was also found that of 75 contacts who had been exposed to infection during June to November, 1928, and who remained at risk at the end of 1928, none was attacked during the first half of 1929, but 15 were attacked in the first half of 1930, the ratio of attack-rates in the general population of susceptibles being as 3·3 to 15. These results seem to be consistent with the previous ones, using a similar control but a slightly different method.

I am again indebted to Dr. George Sowden, medical officer of health of the borough of St. Pancras, for supplying me with the original notification records.

ATTACK-RATES IN ESCAPED CONTACTS TO MEASLES AND CONTACTS TO OTHER DISEASES

A more direct method of comparing the after-history of contacts who have been exposed to infection within the home and escaped immediate attack with that of a control group was described in a recent paper on whooping-cough,[3] and this method has been applied to measles. By the courtesy of the public health department of the London County Council, the names of all children of certain ages who were excluded from schools in Battersea and Paddington as home contacts to measles, whooping-cough, scarlet fever, diphtheria, and chicken-pox between

TABLE I.A.—BATTERSEA

Excluded as contacts to—	—	Age last birthday.	1926.		1927.				1928.				1929.				1930.		Totals.
			3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	
Measles.	Contacts.	5	2	3	9	14	4	6	8	98	8	6	5	..	6	5	..	..	174
		6	..	2	4	9	3	4	7	106	4	6	..	..	12	..	..	..	157
		7	..	..	..	..	..	5	1	41	3	6	3	..	6	3	..	..	68
		8	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	3=402
	Left at risk to measles.	6	..	..	2	3	8	10	4	4	4	87	8	6	5	..	6	4	151
		7	..	..	..	2	4	8	3	3	6	97	3	6	..	..	10	..	142
		8	..	..	..	..	..	..	..	5	..	39	3	6	3	..	4	3	63
		9	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	3=359
Scarlet fever, diphtheria, whooping-cough, chicken-pox.	Contacts.	5	31	48	45	48	26	52	4	47	49	80	94	45	19	58	..	..	646
		6	21	69	60	39	34	62	..	49	54	83	74	36	23	38	..	..	642
		7	..	..	..	..	21	58	1	36	40	62	58	27	21	37	..	..	361
		8	..	..	..	..	..	..	..	..	20	59	57	30	21	30	..	..	217=1866
	Left at risk to measles.	6	..	..	31	48	45	47	26	43	4	46	49	78	93	44	18	54	626
		7	..	..	21	69	60	39	34	57	..	49	54	83	71	36	22	35	630
		8	..	..	..	..	..	..	21	57	1	36	40	62	57	27	21	36	358
		9	..	..	..	..	..	..	..	..	..	..	20	59	57	30	21	30	217=1831

TABLE I.B.—PADDINGTON

Measles.	Contacts.	5	1	3	3	..	1	..	3	43	..	6	11	6	..	2	..	..	79
		6	..	..	12	..	1	..	5	87	1	4	19	6	4	4	..	..	143
		7	..	..	..	..	..	..	2	29	1	5	13	5	1	2	..	..	58
		8	..	..	..	..	..	..	..	..	..	..	14	1	..	2	..	..	17=297
	Left at risk to measles.	6	..	..	1	3	3	..	..	..	1	35	..	6	10	6	..	2	67
		7	..	..	..	..	11	..	1	..	5	79	1	4	17	6	4	4	132
		8	..	..	..	..	..	..	..	..	2	26	1	5	13	5	1	2	55
		9	..	..	..	..	..	..	..	..	..	..	..	..	13	1	..	2	16=270
Scarlet fever, diphtheria, whooping-cough, chicken-pox.	Contacts.	5	6	17	16	19	12	8	2	22	17	50	53	28	22	30	..	..	302
		6	6	22	29	14	17	19	4	20	16	68	68	39	23	37	..	..	382
		7	..	..	..	1	3	10	2	17	15	30	66	33	11	28	..	..	216
		8	..	..	..	..	..	..	..	..	10	25	44	21	22	31	..	..	153=1053
	Left at risk to measles.	6	..	..	6	17	16	19	12	8	2	22	17	48	53	28	22	29	299
		7	..	..	6	22	28	14	17	18	4	19	16	68	68	39	23	37	379
		8	..	..	..	..	..	1	3	10	1	17	15	29	66	33	11	28	214
		9	..	..	..	..	..	..	..	..	..	..	10	25	44	21	22	31	153=1045

August, 1926, and December, 1929, were taken out from the returns made by head teachers and entered upon slips. The ages selected were 5 and 6 during the school year 1926–27; 5, 6, and 7 during 1927–28; 5, 6, 7, and 8 during 1928–29 and the autumn of 1929. The record cards for all measles cases notified or reported to the health department of Battersea and Paddington during 1926–30, placed at my disposal by the kindness of the medical officers of health, Dr. G. Quin Lennane and Dr. G. E. Oates, were arranged in alphabetical order of names, and the dates at which any of the 3889 contacts were found to have been attacked by measles after exclusion from school as contacts were entered upon their slips.

The contacts were then arranged according to the disease to which they were exposed as contacts, age last birthday at the time of exposure, and the year and quarter of the year during which they were exposed. Any of the contacts who were attacked by measles before the end of the next quarter were then discarded, and the numbers left at risk to contract measles from the beginning of the next quarter but one up to the end of 1930 were as shown in Tables I.A and I.B. It could then be assumed that the measles contacts were subject to the same risk during any given quarter of being infected by measles as were the other contacts of the same ages, and the latter could therefore be used as a satisfactory control group selected in exactly the same manner. The ages were adjusted by moving up all those aged 5 last birthday into the 6-year-old group after half a year had elapsed, since their average age at the time of exposure would be 5½, into the 7-year-old group after 1½ years, and so on. The 5-year-olds at the time of exposure were thus regarded as 6 years old in the second, third, fourth, and fifth quarters after the quarter during which they were exposed—that is, after intervals of 6, 9, 12, or 15 months, and as 7 years old in the sixth, seventh, eighth, and ninth quarters after exclusion.

The Battersea measles attack-rates per 1000 of all children living at the ages in question were then calculated during each quarter year during 1927–30,

TABLE II.—*Estimated Measles Attack-rates per 1000 in Battersea*

Age last birthday.	6	7	8	9
Quarter.				
1927.—First ..	1·582	0·631	0·743	—
Second ..	7·200	2·870	3·380	—
Third ..	1·200	0·479	0·564	—
Fourth ..	6·709	2·677	3·151	—
1928.—First ..	107·138	34·056	10·162	10·072
Second ..	96·861	30·790	9·187	9·693
Third ..	8·104	2·576	0·769	0·811
Fourth ..	2·448	0·778	0·232	0·245
1929.—First ..	1·371	0·436	0·130	0·137
Second ..	20·457	6·500	1·942	2·046
Third ..	6·171	1·961	0·586	0·617
Fourth ..	3·600	1·144	0·342	0·360
1930.—First ..	138·286	44·094	13·117	13·840
Second ..	52·755	16·768	5·004	5·280
Third ..	2·691	0·885	0·255	0·269
Fourth ..	3·409	1·083	0·323	0·341

and are given in Table II. By multiplying the numbers at risk by these rates, the expected attacks of measles amongst the contacts until they reached the age of 10 were obtained at different intervals from the time of exposure, and compared with the actual numbers attacked, the results of this analysis being given in Table III. Thus the figure for an interval after exposure of one and a quarter years for measles contacts in Battersea is obtained by multiplying each number at risk in Table I.A by the rate in Table II. for the same age but at the third

quarter beyond (since they were exposed to the original infection two quarters earlier than the quarter in which they are entered "at risk"), then summing up all the products and dividing by 1000.

RESULTS OF THE ANALYSIS IN BATTERSEA AND PADDINGTON

In Battersea there were 1866 control children who were excluded from school as contacts to scarlet fever, diphtheria, whooping-cough, or chicken-pox, and of these 35 were attacked by measles before the end of the next quarter, leaving 1831 at risk from the second quarter onwards. Of these 69 were recorded as attacked during the next 12 months, compared with 122·26 expected on the basis of the general attack-rate, a ratio of 0·564. A falling off in the ratio would be expected owing to removals and deaths. Changes in address and differences in the first names of children as reported by schools and as given in the notification records must partly account for the ratios not being nearer unity, but these sources of error would affect the measles contacts to the same extent, and ought, therefore, to be got rid of when the ratio to expectation for measles contacts is expressed in terms of the same ratio for other contacts. In other words, the process of obtaining the expected attacks is analogous to that employed in the standardisation of death-rates, a standard set of rates being applied to two populations at risk to correct for any differences in their distribution according to age and time; the values of the ratios to "expectation" are therefore not important in themselves, but only as regards their *relative* magnitude. Out of 359 measles contacts at risk at the beginning of the second quarter after exposure, four were attacked during the next 12 months, 16·790 being the expected number, a ratio of 0·238, or less than half the corresponding ratio for the controls.

TABLE III

—	Contacts to—	Attacks.	Interval after exclusion from school. 6 mo.	9 mo.	12 mo.	15 mo.	Totals.
Battersea.	Measles.	Expected	3·32	2·91	7·01	3·55	16·79
		Actual..	1	2	1	—	4
		Ratio ..	—	—	—	—	0·238
	Other.	Expected	23·00	24·38	36·48	38·40	122·26
		Actual..	24	13	21	11	69
		Ratio ..	—	—	—	—	0·564
Paddington.	Measles.	Expected	0·92	1·53	4·98	3·45	10·88
		Actual..	—	2	—	1	3
		Ratio ..	—	—	—	—	0·276
	Other.	Expected	13·02	13·99	20·82	15·42	63·25
		Actual..	10	7	9	3	29
		Ratio ..	—	—	—	—	0·458
Susceptibility of measles contacts in terms of controls of same ages at same risks ..			0·249	0·582		0·549	0·479

In Paddington the course of measles incidence was very similar to that in Battersea, and the same set of "standard" rates have been employed to calculate the expected attacks in measles contacts and controls —namely, the rates in Table II. The resulting ratios were 0·458 for the controls and 0·276 for measles contacts. When the data from these two London boroughs are combined, as shown at the foot of Table III., the corrected attack-ratio for measles contacts in terms of that for the control children was 0·479 for the whole period ranging from 4½ to 16½ months from the time of first exposure to infection.

A proportion of the children in both groups had been attacked by measles before exposure to infection, and in order to test whether this proportion was sensibly different in the two groups the notification records of measles attacks since the beginning of 1925 were entered on the slips, together with any information as to attacks prior to that, and it was found that of the 629 measles contacts 453, or 72 per cent., had no record of previous attack, and of 2875 other contacts 2240, or 78 per cent., had no record of previous attack, the difference not being such as to seriously affect the comparison. Hence unless there is some unperceived fallacy in the method, the children who had been exposed to infection at home from measles and escaped it were about half as susceptible to measles attack after the lapse of 6 to 15 months as were children of the same ages who had been exposed to home infection to other infectious diseases.

SUMMARY

In this paper additional evidence has been given which is consistent with the hypothesis that in measles a temporary latent immunisation occurs amongst the child population of densely populated areas, and that this may be the main factor responsible for bringing epidemics to an end and determining their periodicity. It is not claimed that the theory is proved; it may be that it will fail to stand up to future tests. All that can be said is that it seems to account for the epidemiological facts more satisfactorily than any other theory so far advanced, and that the statistical tests so far made seem to support it.

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1. Stocks, P., and Karn, M. N.: Ann. of Eugenics, 1928, iii., 361.
2. Stocks, P.: (*a*) Proc. Roy. Soc. Med. (Sect. Epidemiol.), 1930, xxiii., 1349; (*b*) THE LANCET, 1930, i., 796.
3. Stocks, P., and Karn, M. N.: Jour. of Hyg., 1932, xxxii., 581. See Section VII. (*c*), p. 611.

MEDICINE AND THE LAW

Inquests and Secrecy

THE Leeds coroner, taken to task by a daily newspaper for having held an inquest in private, states that he held 83 inquests last year without reporters being present. That, rejoins the newspaper, shows that the whole machinery of coroners' courts ought to be overhauled. Yet the coroner is merely exercising a discretion whereof Parliament in 1926 deliberately refrained from depriving him. During discussion on the amending Bill in that year, someone suggested that the coroner's court should be made by statute an "open court"; but the Home Office representative, quoting the advice of the Departmental Committee's report of 1909, persuaded the House to make no such change. As the Court of Appeal observed in 1918, the old case of Garnett *v.* Ferrand is authority for the principle that an inquest ought sometimes to be conducted in secret in the interests of decency or out of respect for the feelings of the family of the deceased. The Departmental Committee said that, though publicity was often of the greatest value, there were many cases where no public end was gained by reporting the proceedings. "The gratification of a public curiosity cannot be weighed for a moment against the intense pain caused to the relatives of the deceased by the disclosure of family matters which may have nothing to do with the cause of death." The Leeds coroner has lately pointed out that publication of details of suicide may possibly lead persons of morbid mind to repeat the actions described. Whatever the reasons for the present legal position,

there is no doubt of the coroner's discretionary power to hold an inquest in secret. This does not so much mean that he will sit behind locked doors as that he will not volunteer information to the press of the time and place of an impending inquest.

In 1909 the Departmental Committee gave a careful hearing to the views of Mr. J. T. Smith, chairman of the London branch of the National Union of Journalists. He proposed not only that an inquest should be made an open court by statute but also that reporters should have a right to inspect the depositions and that coroners should publish notice of forthcoming inquests with details of the age and sex of the deceased. Journalists, he said, had no quarrel with 999 out of 1000 coroners. Many coroners sent a post card to the newspaper in advance or else the coroner's officer gave notice to the reporters. In County Cork there had been a coroner who, to circumvent the secretiveness of the gaol authorities, made a habit of summoning a reporter as a juryman at inquests held after executions. But on the other hand an English coroner, recently criticised by a newspaper for his handling of evidence, had intimated in correspondence with the editor that notification of impending inquests could hardly be expected in future. The Departmental Committee was also told the full story of the classic encounter between coroner and reporter in 1887. A girl who had been missing from a high school in Suffolk was found drowned and post-mortem examination indicated an advanced state of pregnancy. A reporter called upon the coroner and asked when the inquest would take place. The reply was that the inquest would be private and the press would not be admitted. Next day, when the proceedings began, several reporters were present and were ordered to leave on pain of committal for contempt. The jury sided with the press and after a stormy scene the court was adjourned for a week. Further adjournments were necessary, the jury refusing to act unless reporters were present. Finally, the coroner took the opinion of the Lord Chancellor's department and received a reply that his contention was legally correct. Thereupon the coroner appeared in court with a bundle of committal forms already filled up for every juror who refused to act and every reporter who refused to leave. The jurors protested but decided to act; all the reporters withdrew save one who appealed to the jury to stand firm and, refusing to withdraw, was at once committed for seven days to Ipswich gaol. He was released by Home Office order just before a writ of habeas corpus reached the prison; the inquest proceeded and the battle came to an end. The Departmental Committee remained unimpressed by the recital. The members were unconvinced that publicity was the paramount interest. They even asked the witness whether the head-line "Another Death from Anæsthetics" might not increase the public apprehension and frighten patients to their disadvantage.

There nevertheless remains one point which the advocates of unrestricted publication can now make. The Departmental Committee declared that the presence of the coroner's jury was a sufficient guarantee that inquest proceedings would be fair and above board. At that date our ideas of the necessity of juries in all kinds of trials had not yet been changed by the needs of the last war, nor had Section 13 of the 1926 Act yet been framed by the draftsman to make permanent provision for non-jury inquests. Parliament still insists on a jury being summoned by the coroner in all cases of suspected murder or manslaughter or to inquire into traffic fatalities and on certain other prescribed occasions; but it can now be argued that the presence of jurymen is no longer a safeguard and a substitute for publicity as in pre-war days. On the other hand it remains true that the place where examining magistrates sit is, by virtue of Section 19 of the Indictable Offences Act, not an open court; the magistrates, who are of course unattended by a jury, can close the doors and exclude the public and the press "if it appear that the ends of justice will be best answered by so doing." Coroners have been given the same discretion; there seems no sound reason for taking it away.

PARIS

(FROM OUR OWN CORRESPONDENT)

DICHOTOMY

THE practice of dichotomy, to the existence of which in England one of your correspondents has drawn attention, is said to be growing in France. Dr. P. Cibrie, in the *Presse Médicale* of April 15th, believes that the French medical profession is threatened with "a mortal danger." This practice has long been regarded with disapproval by the profession. From the moment of its creation, the Confédération des Syndicats Médicaux Français has taken a definite stand against dichotomy. Article 50 of the Confédération reads thus: "the necessities of the practice of medicine often oblige the medical practitioner to call in a colleague for special examinations or an operation. The ideal conduct is for each doctor to present a separate bill to the patient. In the case of an operation, however, it is permissible to present a combined bill, the comprehensive character of which should be explained to the patient or his relations who, if they so desire, should be informed as to the proportion each doctor receives. Every clandestine payment—i.e., one made without the patient's knowledge, is forbidden as being immoral." In Article 51 the general practitioner is told that his share in the fees for an operation should not in any case be in excess of what his effective collaboration in the operation is worth. In 1932 the Confédération stressed its determination to fight what Dr. Cibrie calls the epidemic of dichotomy by adopting, at its general meeting, a resolution condemning the practice and recommending in the case of operations either separate bills or a combined bill in which the relative shares of the surgeon, the general practitioner, and the assistants are noted. On the same occasion the Confédération specifically forbade the practitioner to allocate to himself any share of a surgeon's or specialist's fee. The difficulty is how to give effect to these principles and prohibitions. Dr. Cibrie would like to see every association of surgeons or specialists solemnly abjure dichotomy. He also suggests that local medical societies might draft, in agreement with the specialists of the same locality, a simple statement which could, in certain cases, be attached to doctors' bills. Dr. Cibrie suggests the following statement: "The Medical Society of .....declares that its members formally undertake not to give or receive any commission, of whatever character, in connexion with the practice of their profession." Dr. Cibrie hopes that by stern and collective action, backed up by the goodwill of the medical profession, it will be possible to hold dichotomy in check.

LEPROSY IN PARIS

Whereas in 1890, according to Dr. J. Noir, there was only one leper known to be in Paris, there are now some 300 lepers in the city, only a score of whom are

in hospital. The increase may appear to be greater than it actually is, since 40 years ago there may have been many other unrecognised cases. But there has certainly been an influx of lepers from the colonies into France, where the leper knows he can circulate more or less freely, find work and, if need be, receive treatment. A recent study by Dr. P. Decourt of 61 such lepers has shown that among them were students, teachers, men servants, and hotel and restaurant waiters. One woman leper was even found to be attending children. Apart from immigrant lepers, there are some in Paris who belong to parts of France where the disease is endemic, runs a mild course, and attracts little attention. In a recent book on the psychology of the leper and the problem of leprosy as far as it concerns Paris, Dr. Decourt expresses himself in favour of attempting to meet the psychological as well as the material needs of lepers by providing them with some common centre. Though the leper is sociable, Dr. Decourt believes that he prefers the company of his fellow-sufferers to that of others. Dr. Decourt would like to place this centre in an island near the French North African coast.

B C G IN A MINING AREA

The comparison afforded by the mortalities in a given community before and after the adoption of B C G inoculation has a certain value. In the *Revue de Phtisiologie* for March-April, 1933, Dr. P. Bréhon, chief medical officer of the mines of Béthune (Pas-de-Calais), gives an account of his experiences since 1926, a period during which B C G has been given to the infants of the company's employees within 10 days of birth, whether the surroundings were tuberculous or not. Of the 5004 infants thus treated during the six years and kept under observation for at least one year, 4560 were born in healthy surroundings, and 444 in tuberculous surroundings, definite or suspect. There were 218 deaths during the first year of life, a mortality of 4·35 per cent. Among the 218 deaths there were 35 which occurred in suspect or definitely tuberculous surroundings. The chief causes of death were broncho-pneumonia (91), convulsions (39) and gastro-enteritis (35). During the three years preceding 1926, the average infant mortality in this community was 6·88 per cent. It should, however, be noted that, previous to the three years before 1926, the infant mortality in the same community was as high as 10 per cent. It fell to 6·88 per cent. in response to a campaign for a better milk-supply. With an infant mortality which comes down with a run like this, from 10 per cent. to 4·35 per cent., and which begins its decline before the introduction of B C G it is of course impossible to ignore the objection that the value of this comparison is only relative. In addition to the infants who died, there was a goodly number (52) whose parents migrated and eluded further observation. Among the 4734 remaining children kept under observation for one to six years there were 54 deaths, a mortality of 1·14 per cent. When these deaths were classified according as they occurred in healthy or tuberculous surroundings, it was found that the mortality was 1·05 per cent. among the former, and 2 per cent. among the latter.

SHROPSHIRE ORTHOPÆDIC HOSPITAL.—This institution has just changed its name for the third time. Originally the Shropshire Surgical Home, in 1920 it became the Shropshire Orthopædic Hospital and Agnes Hunt Surgical Home. It has now been re-named the Robert Jones and Agnes Hunt Orthopædic Hospital, formerly the Shropshire Orthopædic Hospital. The change has been made in recognition of the work done for the institution by the late Sir Robert Jones and Dame Agnes Hunt.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

A CRITIC OF THE MEDICAL CURRICULUM

UNDER the heading of Away with Lumber in the Medical Curriculum, Dr. Chalmers Watson sets out his views in the Edinburgh University *Student*. The curriculum should be planned, he says, to cultivate the student's individual thinking powers, and for special subjects the sole consideration should be the student's needs. The time given to practical medicine must be greatly increased—at least trebled—whereas the time given to practical surgery, operations, &c., should be materially decreased, except in relation to out-patient work, of which there should be more. Facilities for clinical observation and instruction should be available earlier in the curriculum than at present—say, not later than the second year. Here the problem is largely one of convenience in the hospitals. Dispensary practice should be re-established and more efficiently organised as an integral qualifying part of the student's work. Reorganisation of all the basal scientific subjects is called for. In the third year the present "combined" class of "medicine, surgery, and pathology" should be replaced by the former complete entity, the "principles and practice of medicine." In Dr. Watson's view, it is not too much to say that this year's study, as at present conducted, is a travesty of the word education. Here the present class of "anatomy and physiology in relation to clinical medicine" should be abolished as being, to a very great extent, a waste of time of the teacher and student. Lectures in "clinical medicine" should be reorganised so as to secure appropriate coöperation of the teachers of special subjects—such as public health and eugenics. The time of senior medical students should not be unduly taken up by special classes, designated as optional, conducted by examiners in the final examination, on subjects bearing very little relation to the student's future needs. The time saved by these changes should be devoted to subjects of the highest importance which are at present neglected or receive too little attention—e.g., food and feeding, antenatal hygiene, physico-therapeutics, and eugenics. The main defects of the present curriculum, Dr. Chalmers Watson sums up, are the great prevalence of the cramming system, excessive teaching of specialised detail, and inadequate instruction in the principles and practice of preventive medicine.

Some of these criticisms are relevant only to Edinburgh conditions; but no doubt they will serve to stimulate further discussion. One would like to hear Prof. L. T. Hogben or Prof. Jennings, of Baltimore, on the making of eugenics into a curriculum subject. If the basic sciences of biology, chemistry, and physics, are excessive, they are at least relevant to all the work of the curriculum, while eugenics is, as yet, largely a bundle of biological controversies. Preventive medicine, on the other hand, is, in actual practice, not understood or taught at all in any of the schools. The reason is quite simple: the mass of diseased conditions to be treated is too overwhelming, and there will be no preventive teaching until the standpoint of the teaching is altered. Everyone wishes to see preventive medicine taught; but Dr. Chalmers Watson makes no practical suggestion as to the method. In Edinburgh, however, a beginning has, I believe, been made in the use of the materials provided in superabundance at the school clinics and the child welfare centres. Here

the standpoint is not disease but health. Apart from Edinburgh, no Scottish school offers any effective teaching in the examination of young and old from the standpoint of health. The insurance companies are there by the score demanding this type of clinical knowledge; but, usually, the insurance consultants have to learn it afresh for themselves. It is sometimes pitiful to see how little is known by the recent graduate. That is not his fault; it is the fault of the medical schools, which have not kept pace with the new developments in clinical medicine on the preventive plane. The developments are to be found in the school clinics, child welfare centres, the maternity homes, the work of the factory surgeons, the army medical boards, and the requirements of the insurance companies. The problem is how can a curriculum be adjusted to these new requirements.

At the moment, the tendency of every special subject is to create more talk and less observation. The complaint of the older clinical teachers is that even the "clinical year" is not used for its primary purpose of mastering more completely the clinical experience available, but for providing occasion for new specialists to enlarge their own subjects. That is part of the problem that emerges from the wide survey recently made by the General Medical Council. Let it be said, however, that the whole problems are too numerous and too complicated for any single dogmatic solution. The question then arises how much longer is the curriculum to be made. Are we to keep the medical man as a student until he learns to swim before entering the water? The same problem is troubling many European countries as well as America.

MOTHERCRAFT

There is nothing easier to speak of than the teaching of mothercraft, and nothing more difficult than to make that teaching really practical. At the Edinburgh Mothercraft Club recently, Miss Mabel Liddiard gave a sketch embodying the well-known facts about New Zealand and Truby King's work there. The education in mothercraft, she held, should begin in the nursery and in the school. During adolescence we ought to present to girls the winning, joyous side of infancy, and we must have qualified people to do it. The only people qualified to teach mothercraft, she said, are those who have had personal contact with babies. It can never be learnt as a theory. But the profession of motherhood needs equipment; instinct is not enough.

Miss Margaret Drummond, who works as a psychologist at the Edinburgh Training College, discussed the stages of development in a baby's mind. Many psychologists hold that one of the first theories that the baby develops is that of his own omnipotence. How? He realises that there are great powerful creatures all about, but they simply exist to do what he wants. It would be very unfair to break to the baby too roughly the fact that he is really a very unimportant little speck in the world. It is a good thing, too, for a child to grow up with confidence. But from the first it must be remembered that a little child is a person to be treated with respect as a person—within limits! Nor should too much assistance be given. Let things and happenings teach him. The real problem is, when should this knowledge be given? Infancy is too early; the pre-adolescent two years is too early; adolescence itself, when the greater emotions are in course of development, resents the teaching of mothercraft. Probably the most suitable time in the curriculum is at classes in the continuation schools.

Prof. P. S. Lelean said that, until recently, girls got no instruction of any kind in the schools. If girls were not getting instruction in the essentials of infant care and infant feeding, they were entitled to ask what the education committee in Edinburgh, which spent £1,000,000 a year on education, was giving to them instead of this primary essential education for their duties as citizens of the State. If the curriculum was too full—and it was too full—they were entitled to ask whether something of culture that was non-essential might not be eliminated. What consolation was culture to the woman who had killed her child by dangerous feeding? Whatever cultural subject had to be dropped, at least mothercraft must be taught. Edinburgh had something like 3000 girls each year of 15 to 18, and they had at present one school of mothercraft where 24 out of the 3000 could obtain this training.

It is interesting to notice how the same problem comes round and round at different stages of social development. In Herbert Spencer's "Education" the same ideas almost in the same words were written over 80 years ago, and we are still fumbling about for a reasonable method of teaching. It is good to see the question agitated; but it is as well to remember that, for one good reason or another, the expectation of life has increased very materially in the last 20 or 30 years, and the effort of training women in a primary duty has never been entirely relaxed.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE MEDICAL PROFESSION AND THE TEMPORARY ECONOMIES BILL

THE Public Services (Temporary Economies) Bill, commonly known as the "Cuts" Bill, now before the Dáil, has caused a good deal of anxiety to members of the medical profession who are engaged in any branch of the public service in the Irish Free State. At a meeting of delegates of the profession from all parts of the country held in Dublin on May 9th, the Bill was discussed, and a memorandum, prepared by the executive committee of the Irish Medical Committee, was adopted for submission to the Minister for Local Government and Public Health and to members of the Dáil and Senate. The memorandum points out that the case of medical officers in regard to the proposed deductions from salaries differs in some respects from that of other groups of officers, and requires special consideration:—

(1) The medical officers are members of a learned profession, study for which has occupied several years of their lives.

(2) Subsequent to graduation they have had to give much time to improve themselves further before they were likely to be selected for posts in the public service. In many cases they have had to obtain higher diplomas.

(3) For some offices a candidate, before appointment, must already have had many years' experience of professional work, and must have secured for himself a position of some eminence in his profession, if he is to command respect in the performance of his duties.

(4) Such a candidate entering the public service at a much later period than his non-professional colleagues, and therefore not able to count as many years of service when his time comes for retirement, can only claim a pension which bears a much lower relation to his salary than in the case of his colleagues.

It is pointed out that the considerations mentioned above in (3) and (4) apply with special force to the class of medical civil servants. The emoluments of such officers are not large, and the main attraction to candidates has been the supposed security of remuneration.

In regard to whole-time medical officers of health, it is pointed out that these officers were all appointed within recent years and that the great majority of the officers appointed had, as a matter of fact, resigned appointments in Great Britain, and in doing so surrendered chances of promotion and pension rights in services which offered opportunities much greater than in Ireland. The salaries paid in Ireland are much less than the salaries paid for similar duties in Great Britain. It is added that public health work in the Irish Free State is in its infancy, and the burden of work falling upon the county medical officer is enormous. He has to organise entirely new schemes, introduce them to a public unused to preventive medicine, and often to try to work them in the face of much opposition and prejudice. The success of his work is of immense importance to the State, and it is essential that the service should be such as to retain in it men of the highest qualifications and gifted with imagination and initiative. When salaries were fixed the following factors were considered: (*a*) the local authorities had to be encouraged to put the services in operation and low salaries were part of the inducements to such authorities; (*b*) the salaries were very recently fixed and not in the days of currency inflation and high cost of living; (*c*) the service was in its infancy and salaries were fixed as a minimum. These factors were realised by the newly appointed officers and they were willing to work for a minimum until such time as the public realised the value of their services. Their contracts of service having been so recently made, and under the above special conditions, it is claimed that it would be peculiarly harsh to make any, even temporary, reductions in their salaries. The salaries of medical officers of mental hospitals also compare very unfavourably with those paid for similar work in Great Britain, while, for the junior ranks, promotion is both slow and uncertain. In some cases the hospital carpenter is better paid than the assistant medical officer. The memorandum also deals with the case of the county hospital surgeons.

The case of the dispensary medical officers is discussed in greatest detail.

The salary varies between £175 and £350 a year. It is not a salary in the ordinary sense of the term, in that the amount is not devoted to remuneration for work done, but in part to remuneration for work done and in part to payment of out-of-pocket expenses. It is impossible to allocate the proper proportion under these two heads. In most country districts, however, and the great majority of the poor-law medical officers work in country districts, the annual cost of keeping and running a motor-car, with the hire of a man, properly attributable to poor-law work must be more than 50 per cent. of his maximal salary. That is to say, approximately 50 per cent. or more of the so-called salary is, in fact, out-of-pocket expenses. This fact must be borne in mind should deductions be forced on dispensary medical officers.

From another point of view a "cut" would press more hardly on a dispensary doctor than on almost any other member of the community, for no one has been hit more severely by the financial depression. When times are bad the doctor's bill is always the last to be paid. It is the universal experience of country doctors at present that their income from private practice has almost vanished. But the financial depression has reacted on them in another way also, in that it has increased their dispensary work beyond measure. Those patients who formerly were treated by the dispensary doctor as private patients, and paid him, are now attended by him as dispensary patients. He has thus suffered on both sides—his income from private practice has dwindled, his dispensary work, and the expenses incidental thereto, have increased.

The memorandum closes with the repudiation of any claim for special privileges for members of the medical profession. They are already subjected to the same hardships as, and in some cases to greater hardships than, their fellow-citizens in the present financial depression. But it is added that reasons have been adduced for submitting that: (1) the case of medical officers is a special one; (2) any interference with their salaries tends to produce, not merely hardship to them, but injury to the interest of the public; (3) the case of dispensary medical officers presents peculiar features of its own.

The memorandum was handed to the Minister for Local Government and Public Health on the following day by a representative deputation. The Minister entered into a sympathetic discussion of the several points raised. He made it clear, however, that the principle of the "cut" could not be abandoned by the Government. In regard to the case of dispensary medical officers he assured the deputation that the "cut," if any, would be small, as it was not intended by the Government to make deductions from salaries under £300 a year. He further expressed the personal opinion that none of the salaries of medical officers in the public services were too high.

REGIUS PROFESSOR OF SURGERY IN THE UNIVERSITY OF DUBLIN

Sir Charles Arthur Kinahan Ball has been appointed Regius professor of surgery in the University of Dublin to fill the vacancy caused by the death of Sir William Taylor. Sir Arthur Ball is a graduate of the University and a Fellow of the Royal College of Surgeons in Ireland. He is senior surgeon to Sir Patrick Dun's Hospital. He is the eldest son of the late Sir Charles Bent Ball, who in his time was also Regius professor.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

J. A. Page to be Surg. Lt.

The following appointments are notified: Surg. Comdrs. P. N. Button and T. J. O'Riordan to *President*, for course; F. C. Hunot to *Defiance*; and W. G. Thwaytes to *Malaya*, and as Sqdn. Medical Officer.

Surg. Lt.-Comdr. J. Hamilton to *Devonshire*.

ROYAL NAVAL VOLUNTEER RESERVE

Proby. Surg. Sub-Lt. T. D. R. Aubrey to be Surg. Sub-Lt.

ROYAL ARMY MEDICAL CORPS

Maj. H. C. Godding is selected for service under the Colonial Office.

Capt. J. C. Coutts to be Maj.

ARMY DENTAL CORPS

Capt. T. G. Doig to be Maj.

RESERVE OF OFFICERS

The undermentioned, having attained the age limit of liability to recall, cease to belong to the Res. of Off.:—Lt.-Cols. W. Davis and H. St. M. Carter.

TERRITORIAL ARMY

Capt. A. S. Pern to be Maj.

J. R. Robertson (late Cadet Corpl., Univ. of Lond. Contgt. (Med. Unit), Sen. Div., O.T.C.) to be Lt.

T. T. S. Hall (late Cadet Serjt., Queens Univ. Belfast Contgt., Sen. Div., O.T.C.) to be Lt.

TERRITORIAL ARMY RESERVE OF OFFICERS

Lt.-Col. J. E. N. Ryan, from Active List, to be Lt.-Col.

Capts. N. Capstaff and A. A. Eaggers, from Active List, to be Capts.

Lt. B. McK. Dick, from Active List, to be Lt.

INDIAN MEDICAL SERVICE

The undermentioned appointments are made: To be Lts. (on prob.): W. M. E. Anderson, and remains secd., and R. D. Scriven.

Lt.-Col. W. E. Brierley retires.

ROYAL AIR FORCE RESERVE

Flight Lt. P. J. Nyhan ceases to be employed with the Regular Air Force.

Auxiliary Air Force Reserve of Officers.—T. E. Cawthorne is granted a commission in Class D as Flying Officer.

PUBLIC HEALTH SERVICES

The Economics of the School Medical Service

To suggest that school medical work is merely an accessory to education would now be hotly disputed, and yet historically it is true. For the medical care of school-children began as a means of ensuring that they should be able to profit from the free education provided, and the first defect to be dealt with was imperfect vision because it was a hindrance to reading. Before medical inspection was made a legal duty some large cities had segregated from the general school population certain children who were medically certified as, by reason of mental or physical defect, unable to benefit from the education in ordinary elementary schools. Another aim was to exclude children who might hinder the education of others by communicating contagion to them. The beginning of a broader outlook was shown in a very early report by Dr. G. A. Auden, one of the veterans of the service, whose retrospect is full of interest. Over twenty years ago he wrote :—

> It is plain that if these debilitated children are to be educated at all (and both the interests of the State and the individual demand it), then the duty is imposed upon education authorities of supplying such a form of curriculum as will at once improve both their bodily and their mental condition. One form of educational institution alone satisfies these two demands—the open-air school.

Even when the work grew wider in scope, it was still done by a medical officer of the education authority ; gradually however it became linked with public health so that now with few exceptions the school medical officer is the medical officer of health. Now too the school doctor coöperates with the teacher not only to make the children fit for education but to produce citizens of first-class quality in mind and body. Yet in Leicester, as Dr. Allan Warner tells us, out of an education rate of 3*s.* 8¾*d.* only about 1¾*d.* was required for the medical department last year. The return for the money spent is well set out by Dr. F.T. H. Wood in his report for Bootle. He writes :—

> The report gives some account of a service which costs about £3900 per annum, of which one-half is met by allocation from the local rates. This latter sum is the equivalent of a penny rate which, levied on a house letting at the representative rental of 8*s.* 6*d.* per week, entails a contribution of somewhat less than one-third of a penny per week from such a householder for services of the following nature and extent to those of his children who are attending school.
>
> As a minimum each child will receive three full medical examinations during its school life, and will be referred for appropriate treatment if found defective, or will be given such hygienic or medical advice as is necessary to secure for it the maximum chance of remaining healthy if no defect is found. If the defect discovered is of a nature for which private or other public provision is not available (that is to say, defects of the eyes, ears, teeth, throat, and skin) treatment will be offered at the school clinic free or at a small charge. Further, each child from the age of 7 upwards will receive an annual inspection from the school dentist followed by an offer of treatment at the most valuable stage—viz., when the teeth can still be saved—if the parent decides not to seek private treatment.

This so far is the basic return obtained by the ratepayer for his contribution to the school medical service. But Dr. Wood has more to say :—

> Then, it will be the exceptional child which at some point in its school life does not call for aid from one or other of the special clinics, apart from any reference which may follow the three routine medical examinations and the seven routine dental inspections ; these clinics include the ophthalmic clinic where a specialist surgeon prescribes for defective vision, throat and ear clinics where other specialists perform necessary operations, the orthopædic clinic where the deformities of child life receive attention, and the minor ailments clinic, at which some 20,000 attendances are made annually with considerable advantage not only to the affected children but also to their school fellows and teachers.
>
> Moreover, each child will benefit from the administrative machinery for the control of infectious disease and for the promotion of cleanliness and the eradication of vermin, from the supervision given to the ventilation and equipment of school buildings, and from the influence directed to securing suitable meals and physical recreation. No reference has been made to the exercise of statutory functions of the school medical officer such as those in connexion with the education of the blind, the deaf, and the mentally defective, but enough has been said to support the claim that the typical householder of Bootle gets value for the one-third of a penny per week which he contributes to the cost of the medical side of the education service.

It is scarcely necessary perhaps to add that the work of the school medical service and the provision made by enlightened education authorities are particularly vital in these days of economic stress. In his report for Leeds Dr. G. E. Stockwell says :—

> There are four cardinal factors which affect the health of the growing child—food, air, rest, and exercise—and of these, food is of special importance at all times, but especially in times of financial stress. More than any other factor the amount and also the quality of food are likely to vary with the economic situation, with consequent danger to the health of the children. This risk is the more insidious in that deficiencies in the quality of diet may not produce immediately obvious results ; a diet may be defective in quality and yet, if sufficient in amount, may satisfy children's appetites and maintain vigour and health for some time, but with inevitable results in failing to promote a full measure of healthy growth, in a lessened immunity to disease, and in other ways.

The physique and stamina of large sections of our population might be permanently damaged if it were not for beneficent agencies such as the provision of meals, milk, and cod-liver oil, the open-air schools, and the work of the organisers of physical training with all of which the school medical officers are closely associated and, more directly, medical treatment including the artificial sunlight clinics. Of all public expenditure this is the least wasteful.

Puerperal Fever at Plymouth

Dr. Thos. Peirson, medical officer of health for Plymouth, reported to the city council on May 8th on an outbreak of puerperal sepsis at the Three Towns Maternity Home, Stonehouse. Two cases were notified on April 26th, when swabs were immediately taken from the throats and noses of all the staff to determine if possible the source of infection. On April 27th two more cases were notified, and it was decided to close the institution and to send the remaining patients home as soon as practicable. All members of the staff who showed organisms which might be a source of infection had been sent away for a holiday and would not return to duty until found free from infection. A fifth case occurred on May 5th. Of these five cases two had died. Between March 24th and April 7th three cases of puerperal sepsis, two of them fatal, had occurred in various parts of the city among patients attended by nurses from the Home and private doctors. An inspector from the Ministry of Health had, said Dr. Peirson, visited the home and would report to the city council in due course.

Rural Water-supplies

A circular (No. 1338), addressed by the Minister of Health to county and rural district councils, urges them to exercise the powers conferred on them by the Local Government Act, 1929, in the direction of seeing that their districts are supplied with pure and wholesome water. What is needed is a thorough survey of existing supplies and the availability of new supplies, and consideration for the improvement of conditions. In some cases where community of interest exists between rural districts or between

rural districts and urban neighbours, it may be found that the setting up of a joint advisory committee is the best course. Any action in this direction should be taken in conjunction with county borough or other councils who may be leading water suppliers in the area. County councils might advise rural councils as to the use of local sources and measures for protecting these sources from pollution. Timely measures of prevention may, it is pointed out, be carried out at small cost, but once a source is polluted, comparatively high expenditure will be required for remedial measures.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 6TH, 1933

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 23 (last week 33); scarlet fever, 1891; diphtheria, 791; enteric fever, 31; acute pneumonia (primary or influenzal), 870; puerperal fever, 42; puerperal pyrexia, 121; cerebro-spinal fever, 41; acute poliomyelitis, 6; acute polio-encephalitis, 3; encephalitis lethargica, 10; dysentery, 23; ophthalmia neonatorum, 80. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on May 9th–10th was as follows:—Small-pox, 62 under treatment, 1 under observation (last week 64 and 5 respectively); scarlet fever, 1574; diphtheria, 1559; enteric fever, 12; measles, 393; whooping-cough, 474; puerperal fever, 20 (plus 10 babies); encephalitis lethargica, 232; poliomyelitis, 3; "other diseases," 304. At St. Margaret's Hospital there were 13 babies (plus 6 mothers) with ophthalmia neonatorum.

Deaths.—In 118 great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 53 (1) from measles, 8 (0) from scarlet fever, 32 (6) from whooping-cough, 12 (4) from diphtheria, 35 (4) from diarrhœa and enteritis under 2 years, and 38 (9) from influenza. The figures in parentheses are those for London itself.

Manchester reported the only death from enteric fever. Liverpool reported 20 fatal cases of measles, Nottingham 5, Blackburn 4, Bradford 3. Four deaths from whooping-cough occurred at Manchester, 2 each at Leeds and Swansea.

The number of stillbirths notified during the week was 312 (corresponding to a rate of 46 per 1000 total births), including 54 in London.

OBITUARY

J. T. JACKMAN MORRISON, M.B. Camb., M.Sc. Birm., F.R.C.S. Eng.

WE regret to record the death on May 10th of Prof. Jackman Morrison, consulting surgeon to the Queen's Hospital, Birmingham, and Emeritus professor of forensic medicine in the University. Mr. Morrison, who was in his seventy-seventh year, was a man of outstanding character who will be widely missed in the Midland counties.

James Thomas Jackman Morrison was born at Okehampton, Devon, and educated at Christ's College, Cambridge, where he was a foundation scholar and gold medallist in English, and at Guy's Hospital where he won the same distinction in clinical surgery. He took the M.R.C.S. in 1879 and his Cambridge medical degree in 1883, after having demonstrated for two years in the dissecting room at Cambridge, and on qualification he became house surgeon at Guy's. His association with Birmingham began with three years as resident surgical officer at the General Hospital, when he was appointed casualty surgeon and lecturer on minor surgery at the Queen's Hospital, remaining on the active staff there for nearly 30 years. His interest in clinical surgery was very wide. One of his contributions to the "Encyclopædia Medica" was a monograph on the treatment of wounds, their varieties and modes of repair, and he was an early advocate in this country of spinal anæsthesia of which he gave a brilliant review in the Ingleby lecture of 1913. At that time he had himself used tropacocaine for spinal anæsthesia in nearly 1300 cases at the Queen's Hospital, less than 3 per cent. of which had required any general anæsthetic by way of supplement. Spinal anæsthesia, he felt, might increase the possibilities of surgery by facilitating the work of the surgeon in the absence of competent assistance, and he was keen that the procedure should be taught in all medical schools. His lectures on clinical surgery at the Queen's Hospital were popular with students and he examined in the subject at the University. He also wrote papers on localisation of intracranial lesions, on intestinal volvulus, and on cancer of the cæcum.

PROF. JACKMAN MORRISON

[Photograph by Barclay

A few weeks after the declaration of war in 1914 Morrison, who held rank as major in the R.A.M.C.(T.), was asked by Lady (Ralph) Paget to be surgeon-in-chief of the Serbian Relief Fund Unit she was organising, and within a few days of his arrival at Skoplye in Southern Serbia he had improvised from primitive material an efficient hospital of 280 beds. He remained in Serbia for five months, a period during which the typhus epidemic was at its height; he had a mild attack himself and took part in the work of the Typhus Commission, visiting all the hospitals in the country including those in charge of Dr. Grace Soltau, Sir James Berry, and Dr. Ryan. In recognition of his services he received the Order of the White Eagle. Quite early in his surgical career Mr. Morrison became surgeon to the Birmingham police and interested in forensic medicine; in 1899 he was appointed to the University chair, which he occupied until his retirement last October. He was not only a medico-legal expert but a witness of wide experience and, on the testimony of the bench, an extremely good witness. It fell to his lot to give evidence in a number of important criminal cases and he took a prominent part in the acquittal of a woman on a murder charge. He frequently sat with the judge in the county court as medical assessor in compensation cases. His legal mind made him a valuable counsellor, not only in courts of law but in giving advice on the many committees on which he served. At the time of his death he was president of the United Kingdom Police Surgeons' Association. In 1914 he was made a magistrate for the city.

Morrison possessed great literary skill and was an orator of a high order. His command of English

was exceptional, and an address by him was an assured pleasure for his audience. He became the historian of the Birmingham medical school and justified the claim of the Queen's Hospital to be the first hospital established outside London for the provision of clinical instruction. His "Life of William Sands Cox," produced at short notice, drew an entertaining picture of a man who, while he did not suffer fools gladly, laid the foundation of a medical school at his house in Temple-row.

Those who knew Prof. Morrison realised best that under a somewhat austere manner there was a real warm-heartedness of character. In his private life he gave encouragement and help to many. His widow was a daughter of John Ward Titterton, of Shifnal Manor, Salop.

MEDICAL NEWS

University of Oxford

It has been recommended that a readership in physiology shall be established from Oct. 1st at a salary of £850 a year, and that Dr. F. R. Winton shall be the first holder. It is also proposed that there shall be an additional lectureship and an additional university demonstratorship in the department of anatomy.

University of Cambridge

The Raymond Horton-Smith prize for 1931–32 has been awarded to Dr. J. E. Semple, for a thesis on Chronic Suppurative Otitis Media. Proxime Accessit, Dr. H. L. Wilson.

On May 12th the following degrees were conferred :—

M.B., B.Chir.—A. M. Cunningham, A. W. Franklin, and J. H. Hall.

M.B.—G. G. Mowat and W. W. Sargant.

Royal College of Surgeons of England

A meeting of the council of the College was held on May 11th with Sir Holburt Waring, the president, in the chair. Diplomas in gynæcology and obstetrics were granted jointly with the Royal College of Physicians to Hassan Sobhi (Cairo) and N. J. Thanavala (Bombay and Dublin).

Diplomas of membership were granted to 108 of the 111 candidates whose names were given in our issue of May 6th as recipients of the L.R.C.P. (excepting G. P. Goodwin, E. R. James, and V. L. Liddell) and to the 59 candidates named in the supplementary list published in our issue of May 13th.

English Conjoint Board

At the recent final examination of the Board the following candidates were approved in the subjects indicated, but are not yet eligible for the diplomas of the Colleges :—

Medicine.—R. M. H. Anning, St. Mary's; J. S. Bailey, Camb. and St. Bart.'s; G. A. Barker, King's Coll.; R. L. Benison, Camb. and St. Bart.'s; E. W. Bintcliffe, St. Bart.'s; G. W. Blomfield, Leeds; C. F. R. Briggs, Univ. Coll.; T. L. Chester-Williams, St. Bart.'s; G. R. Clarke, Birm.; R. D. Clay, King's Coll.; Dorothy C. J. Cookson, Royal Free; H. V. Corbett, Liverp.; S. W. Croome, King's Coll.; E. A. Danino, St. Bart.'s; Hilda M. S. Davidson, King's Coll.; H. S. Davis, Camb. and Charing Cross; J. H. Dixon, Camb. and St. Thos.; T. Foulds, Manch.; W. E. F. Gough, Camb. and Leeds; J. Grocott, Guy's; V. P. Gupta, Lucknow and West London; Beatrice J. Haram, Royal Free; J. D. Hay, Camb. and Liverp.; Pearl M. Heirshberg, Royal Free; G. E. Hughes, London; D. A. J. Hunwick, Adelaide; H. G. Hutton, Camb. and London; R. G. James, King's Coll.; Elsie E. Johnson, Royal Free; J. F. E. Johnson, Manch.; W. W. Jolly, Adelaide and Middlesex; N. K. Kai, Univ. Coll.; C. W. C. Karran, Camb. and St. Thos.; E. H. P. Lassen, King's Coll.; G. D. Lehmann, Univ. Coll.; J. E. Lewis, Oxf. and Westminster; Louisa A. Loder, King's Coll.; Catherine B. Mackinlay, King's Coll.; K. S. R. Menon, King's Coll.; Lida O. Meredith, Royal Free; C. B. Miller, King's Coll.; Mildred A. Morgan, Cardiff; W. F. Nicholson, Camb. and Manch.; F. J. O'Dowd, Birm.; R. S. Pachnanda, Punjab and King's Coll.; H. C. Palin, Manch.; R. C. Percival, London; Margaret R. Price, Royal Free; C. Raman, London; K. S. Ramaswami, Guy's; R. S. Richmond, Camb. and St. Mary's; L. R. J. Rinkel, Camb. and St. Thos.; G. C. D. Roberts, Camb. and St. Thos.; Marjorie C. A. Robson, Camb. and Birm.; Picotee E. Rose-Innes, Royal Free; M. Sacks, Leeds; C. A. J. Sampson, St. Thos.; G. H. Saunders, Middlesex; P. Simon, Cardiff; R. L. Soper, Guy's; V. A. J. Swain, St. Bart.'s; Alice C. N. Swanston, Royal Free; Barbara M. G. Taylor, Leeds; J. C. Winteler, King's Coll.; and Audrey R. Wood, Royal Free.

Surgery.—S. B. Adams, Bristol; F. H. Barber, Birm.; T. M. Bell, Camb. and Charing Cross; L. J. Beynon, St. Geo.; G. W. Blomfield, Leeds; Muriel Boycott, Univ. Coll.; Hilda M. Brown, Royal Free; J. C. Buckley, Camb. and St. Thos.; J. J. Chatterton, St. Mary's; J. P. Child, Oxf. and St. Thos.; G. R. Clarke, Birm.; F. E. Corea, St. Bart.'s; C. F. Critchley, St. Thos.; A. Das, Calcutta and Middlesex; W. A. Dawes, Camb. and St. Thos.; C. E. M. de Gruchy, Guy's; C. J. D'Monte, Middlesex; O. G. Edholm, St. Geo.; L. J. L. Edwards, St. Bart.'s; G. H. D. Evans, Cardiff; S. M. Evans, Camb. and St. Thos.; E. H. Evison, Manch.; C. Fletcher, St. Bart.'s; H. C. Fletcher-Jones and J. M. Flower, Westminster; G. L. Foss, Camb. and Bristol; D. L. Fromow, London; I. N. Fulton, Camb. and St. Bart.'s; H. J. Gaudin, Otago; C. J. Gavey, London; H. Goldfarb, Univ. Coll.; N. C. Griffin, Leeds; V. P. Gupta, Lucknow; J. G. Hailwood, Liverp.; G. J. Hamilton, St. Bart.'s; Ida M. Hamp, Royal Free; K. J. Harvey, St. Bart.'s; A. Hemming, Birm.; S. Henderson, Liverp.; C. V. A. Henriques, King's Coll.; E. C. Herten-Greaven, Camb. and London; O. L. Hewson, Birm.; J. Holme, Manch.; H. C. Hugh, St. Bart.'s; J. R. Hughes, Middlesex; T. P. E. Hughes, Oxf. and Middlesex; W. R. Hunter, Liverp.; G. H. James, Birm.; C. C. Jeffery, London; D. J. Johnson, St. Bart.'s; G. F. Jones, St. Mary's; O. G. Jones, Cardiff; V. D. Jones, Univ. Coll.; J. S. Kapadia, Bombay; J. Kingston and C. E. Langley, London; J. B. Lee, Manch.; A. G. Leigh, Liverp.; R. I. Lewis, Cardiff and London; J. S. Marr, Aberd. and London; T. O. Mason, St. Bart.'s; G. J. H. Maud, Camb. and Univ. Coll.; J. T. Mendoza, Manch.; T. Miles, St. Thos.; Barbara G. Morton, Royal Free; G. K. Mulki, Bombay and Middlesex; C. J. B. Murray, Middlesex; S. D. J. Nand, Manch.; J. R. Nassim, Oxf. and St. Geo.; Margaret M. O'Connor, Royal Free; H. C. Palin, Manch.; Emma D. N. Part, Birm.; H. S. Pasmore, Univ. Coll.; V. G. Peckar, Univ. Coll.; E. Pereira, St. Geo.; Margaret H. Prentice, Manch.; R. E. A. Price, London; R. R. Prytherch, Camb. and King's Coll.; R. R. Race, St. Bart.'s; A. M. Rackow, King's Coll.; Helen E. Rogerson, Manch.; I. G. Robin, Camb. and Guy's; Ruth A. Rushton, Camb. and Univ. Coll.; N. S. Sablin, St. Bart.'s; H. S. K. Sainsbury and P. R. Saville, London; I. B. Senjit, West London; H. H. S. Sherwill, Edin.; J. A. Squire, St. Bart.'s; J. W. Stuart, St. Mary's; H. W. Thomas, London; R. C. Walch, St. Bart.'s; M. L. Walt, Cape and Guy's; J. L. Whatley, Birm.; P. R. Wheatley, Guy's; V. H. Wilson, Camb. and St. Geo.; and C. R. Wright, Liverp.

Midwifery.—A. K. Acharya, Calcutta; J. Adler, Charing Cross; M. Ahmad, Sheffield; S. H. Alavi, St. Thos.; C. P. Allen, Liverp.; A. S. Amsden, Guy's; N. Asbell, Westminster; T. P. Ayre, Durham; J. C. Baillie, King's Coll.; C. J. Ballinger, London; T. M. Bell, Camb. and Charing Cross; W. R. Billington, Camb. and Birm.; E. A Bisson, London; J. A. Brocklebank, Guy's; J. W. F. Brown, St. Thos.; J. C. H. Browne, Middlesex; J. A. C. Burridge, King's Coll.; Ruth M. Campbell, Royal Free; H. Caplin, London; R. Carpenter, St. Bart.'s; Vida S. Carr, Royal Free; Freda M. Chalkley, Charing Cross; F. B. Champion, Guy's; J. J. Chatterton, St. Mary's; J. A. Chivers, St. Bart.'s; M. M. D. Chughtai, Punjab and Univ. Coll.; K. H. Clark, St. Mary's; C. W. J. Claydon, King's Coll.; H. M. Clegg, Leeds; C. J. Cobbe, St. Thos.; A. Cohen, Leeds; S. G. Collingwood, St. Bart.'s; Margaret C. Cox, Royal Free; P. E. Cresswell, Oxf. and Guy's; A. Das, Calcutta and Middlesex; D. O. Davies, St. Bart.'s; L. W. Davies, St. Thos.; H. S. Davis, Camb. and Charing Cross; A. E. De Sa, Bombay and Middlesex; F. H. D'Souza, Guy's; Helen E. Dimsdale, Camb. and Univ. Coll.; G. V. W. Doherty, Guy's; W. L. Dove, Liverp.; H. E. Dunstan, Durham; J. Eapen, Madras; E. P. Edmonds, London; M. Epstein, St. Bart.'s; T. Fitt, Camb. and St. Thos.; A. F. Fowler, St. Thos.; J. L. Freer, Guy's; H. E. D. Gale, St. Bart.'s; W. R. Gavin, Camb. and St. Thos.; W. E. F. Gough, Camb. and Leeds; J. Grocott, Guy's; J. G. Hailwood, Liverp.; R. M. Haines, Westminster; R. S. Handley, Middlesex; Beatrice J. Haram, Royal Free; R. V. Harris, St. Bart.'s; E. B. Harvey, St. Thos.; W. F. Harvey, London; J. D. Hay, Camb. and Liverp.; Dorothy J. Healey, Royal Free; A. Hemming, Birm.; S. Henderson, Liverp.; G. T. Hindley, Camb. and St. Bart.'s; C. E. W. Hoar, Westminster; A. C. L. Houlton, Camb. and St. Bart.'s; T. E Howell, Guy's; H. C. Hugh, St. Bart.'s; W. R. Hunter, Liverp.; D. A. J. Hunwick, Adelaide; R. Hussain, Patna; H. G. Hutton, London; D. B. Hyslop, Charing Cross; N. M. Jacoby, Guy's; R. W. John, Cardiff; Elsie E. Johnson, Royal Free; W. W. Jolly, Adelaide; H. W. E. Jones, St. Thos.; J. G. Jones, King's Coll.; O. G. Jones, Cardiff; H. R. Kasday, Middlesex; A. A. Khan, Manch.; G. A. Kiloh, King's Coll.; J. Kingston, London; R. M. Kirkwood, St. Bart.'s; R. W. G. Lancashire, Oxf. and Manch.; C. E. Langle, London; J. H. Lankester, Camb. and St. Thos.; E. H. P. Lassen, King's Coll.; G. D. Lehmann, Univ. Coll.; A. G. Leigh, Liverp.; P. T. Liem, St. Thos.; S. Lilienfeld, St. Mary's; L. Lurie, London; O. Lyth, Guy's; J. M. McArthur, Guy's; W. M. Macleod and C. W. Maisey, St. Thos.; T. F. Malcom, London; R. Mascarenhas, Guy's; W. N. M. Mason, Liverp.; P. C. Matthew, Camb. and Univ. Coll.; E. A. Mayston, Guy's; N. H. Merchant and S. A. Mian, Univ. Coll.; J. R. Miles, Cardiff; R. B. Morton, St. Thos.; G. K. Mulki, Bombay and Middlesex; Frances C. Naish, Royal Free; J. R. Nassim, Oxf. and St. Geo.; P. H. Newman, Middlesex; F. J. O'Dowd, Birm.; P. de R. Pearse, Middlesex; H. N. Perkins, St. Mary's; W. H. Phillipps, St. Thos.; J. W. Piper, Guy's; F. W. H. Plant, Birm.; P. Ramchander, Manch.; E. G. Pyne, Camb. and Charing Cross; C. Ratnayaka, King's Coll.; S. A. Razvi, Birm.; V. B. Reckitt, Guy's; H. W. Rees, Middlesex; J. D. Richardson, King's Coll.; Christine M. Rooke, Univ. Coll.; L. M. Rouillard, St. Thos.; B. Samuel, Cardiff; P. H. Sandifer, Middlesex; K. G. Seager and D. B.

Shulman, St. Mary's; I. M. Shulman, St. Bart.'s; P. Simon, Cardiff; J. Smart, Camb. and St. Bart.'s; M. C. L. Smith, St. Bart.'s; L. W. Spratt, Camb. and St. Thos.; E. Starling, St. Thos.; W. P. Stevens, Birm.; D. L. M. Stewart, King's Coll.; R. J. C. Sutton, St. Bart.'s; Alice C. N. Swanston, Royal Free; M. M. Syddiq, Punjab; S. J. L. Taylor, St. Thos.; W. P. M. Telfer, St. Bart.'s; I. K. Thomas, G. L. B. Thurston, and M. Tin, Guy's; M. M. Walker, St. Thos.; S. H. Wass, Guy's; C. P. B. Wells, Univ. Coll.; P. R. Wheatley, Guy's; M. E. Wigfield, St. Thos.; V. H. Wilson, Camb. and St. Geo.; and C. R. Wright, Liverp.

Pathology.—N. Asbell, Westminster; Ada Aspinall, Manch.; H. H. Atkinson, Univ. Coll.; T. L. Barbour, Guy's; J. E. Barker, St. Bart.'s; J. L. Bates, Guy's; J. Benn and D. Bickler, Leeds; W. R. Billington, Camb. and Birm.; C. J. F. Blumenthal, Guy's; L. C. Bousfield, Middlesex; C. G. Bree, Univ. Coll.; J. C. H. Browne, Middlesex; R. E. Browne, King's Coll.; K. L. Buxton, Camb. and St. Thos.; E. G. L. Bywaters, Middlesex; W. H. Cartwright, St. Bart.'s; J. P. Child, Oxf. and St. Thos.; G. R. Clarke, Birm.; R. F. Clarke, St. Bart.'s; C. D. Clements, Univ. Coll.; Dorothy C. J. Cookson, Royal Free; C. F. Critchley, St. Thos.; J. H. J. Crosse, Camb. and St. Bart.'s; A. E. De Sa, Middlesex; J. H. Dixon, Camb. and St. Thos.; H. E. Dunstan, Durham; J. Eapen, Madras and London; E. P. Edmonds, Oxf. and London; G. G. W. Elwell, Camb. and Univ. Coll.; G. H. D. Evans, Cardiff; S. M. Evans, Camb. and St. Thos.; H. D. Fairman, London; H. J. Fenn, King's Coll.; H. P. Fernandes and E. L. Fisher, St. Bart.'s; H. D. Fleming, St. Thos.; A. R. Ford, St. Bart.'s; E. C. Fountaine, Camb. and St. Bart.'s; W. T. J. Fowler, Guy's; P. S. Fox, Leeds; C. S. France, Manch.; H. E. D. Gale, St. Bart.'s; H. J. Gaudin, Otago; T. D. M. Gillies, St. Thos.; S. W. Gillman, Univ. Coll.; Bessie W. Goodwill, Birm.; W. E. F. Gough, Leeds; V. P. Gupta, West London; S. J. Hadfield, St. Bart.'s; R. M. Haines, Westminster; R. S. Handley, Camb. and Middlesex; A. Harris, Manch.; R. V. Harris, St. Bart.'s; V. E. L. Hart, London; N. H. Harwood-Yarred, Camb. and St. Thos.; S. A. Hasan, Punjab; P. L. S. Hatton, St. Bart.'s; Dorothy J. Healey, Royal Free; D. F. Heath, Durham; G. A. H. Herbert, London; O. L. Hewson, Birm.; B. P. Hill, Manch.; Winifred M. Hill, Bristol; F. G. Hinks, St. Thos.; T. E. Howell, Guy's; D. A. J. Hunwick, Adelaide; J. R. Hutcheon, London; D. B. Hyslop, Charing Cross; R. S. Illingworth, Leeds; N. M. Jacoby, Guy's; E. G. Jones, St. Bart.'s; I. R. Jones, Cardiff; J. G. Jones, King's Coll.; H. R. Kasday, Middlesex; W. L. Kerr, King's Coll.; M. B. Khan, Leeds; E. W. Kinsey, London; N. F. Kirkman, Manch.; R. M. Kirkwood, St. Bart.'s; Alfreda W. Krichauff, Adelaide; Hilda I. Lanceley, King's Coll.; R. E. Lauder, Oxf. and Charing Cross; J. V. Laverick, St. Bart.'s; J. Lees, St. Thos.; R. I. Lewis, London; S. Lilienfeld, St. Mary's; Christia F. Lucas, Birm.; J. B. H. McArthur and J. W. Mansie, Guy's; K. R. Masani, Univ. Coll.; T. O. Mason, St. Bart.'s; G. J. H. Maud, Camb. and Univ. Coll.; G. K. Mulki, Bombay and Middlesex; A. A. K. Naqsh-Bandi, Punjab; J. H. Neal, Middlesex; R. M. Noordin, St. Bart.'s; W. S. Nutt, King's Coll.; A. J. Owston, Camb. and St. Bart.'s; H. N. Perkins, St. Mary's; T. H. Pierce, Liverp.; D. S. Piper, Guy's; G. D. Pirrie, Camb. and King's Coll.; C. H. G. Price, Bristol; H. S. Rassim, St. Bart.'s; T. R. F. Raw, Guy's; D. C. Reavell, St. Bart.'s; G. W. D. Reeves, Guy's; L. R. J. Rinkel, Camb. and St. Thos.; G. C. D. Roberts, St. Thos.; A. T. Roden, St. Bart.'s; Picotee E. Rose-Innes, Royal Free; D. S. Saklatvala, Univ. Coll.; K. G. Seager, St. Mary's; A. L. Secchi, St. Thos.; B. Selwyn, R. Shackman, D. J. Sheehan, and J. Shields, St. Bart.'s; E. Shipman, Univ. Coll.; H. S. Shucksmith, Leeds; D. B. Shulman, St. Mary's; T. W. Smailes, Camb. and Leeds; M. C. L. Smith, St. Bart.'s; L. Sobiya, R. L. Soper, and J. S. F. Sutton, Guy's; V. A. J. Swain, St. Bart.'s; S. J. L. Taylor, St. Thos.; W. P. M. Telfer, St. Bart.'s; R. W. H. Thomas, St. Mary's; J. A. Vermylen, Univ. Coll.; R. S. Vine and S. H. Wass, Guy's; J. T. Watkins, Cardiff; C. P. B. Wells, Univ. Coll.; F. E. Wheeler, St. Bart.'s; C. J. G. White, Camb. and Middlesex; P. A. Wilkinson, Guy's; M. W. Williams, Univ. Coll.; A. B. Wilson, Manch.; F. L. Wollaston, Bristol; Elma Wolmarans, Royal Free; B. L. E. Wong, Guy's; and R. M. Yeo, Camb. and St. Thos.

Utilisation of Fuel

The Coal Utilisation Council last week addressed a questionnaire to 500 medical practitioners, 500 architects, 5000 householders, and 10,000 industrial and commercial undertakings asking what fuel they prefer, what fuel they use, and why. The Council is representative of coal producers and coal distributors as a whole. Its address is Columbia House, Aldwych, London, W.C.2.

Tuberculosis Scholarships in Rome

The Italian Fascist National Federation against Tuberculosis has placed at the disposal of the International Union against Tuberculosis two scholarships at the Benito Mussolini Institute in Rome. They are each of the value of 6000 lire, plus board and lodging, and are intended to enable foreign medical practitioners to stay at the institute and follow a course of studies. This stage of eight months will correspond with the academic year (Nov. 15th to July 15th), interrupted by the usual holiday periods. The scholarships will preferably be awarded to young physicians who are already familiar with tuberculosis problems, and the kind of work undertaken will be subject to agreement with the director of the institute. Application should be made through the secretary of the National Association, for the Prevention of Tuberculosis, Tavistock House North, Tavistock-square, London, W.C.1, not later than June 25th.

University of Manchester

Dr. W. R. Addis and Dr. C. P. Brentnall have been appointed clinical lecturers in the department of obstetrics and gynæcology.

Conference on Cremation

The Federation of Cremation Authorities will hold its twelfth annual conference in London from July 10th to 13th. The address of the federation is 37, York-street, Manchester.

A Clinic in Willesden

The tenth anniversary of the opening of the V.A.D. Special Surgery Clinic and Physical Treatment Centre at 159, Willesden-lane, N.W., is to be celebrated by a May Market at Mapesbury Hall, Willesden-lane, on May 26th, and 27th. The clinic originated in 1920 as a local war memorial, under the Ministry of Pensions, for the relief of war pensioners. It carried on this work until 1925, when it was no longer needed by the Ministry. It was then continued for the benefit of those who required special treatment but were unable to pay heavy fees. Thus expanded it included women and children in its activities. The treatments include diathermy, sunlight treatment, massage, electricity, and manipulation under anæsthetics. The medical superintendent is Dr. L. D. Bailey.

Royal Institution

On May 8th it was announced that the capital payment of £20,000 promised to this institution by the Rockefeller Foundation nearly three years ago, on condition of obtaining £50,000 from other sources, has now been received. The gift is promised for endowment of research in the Davy-Faraday research laboratory. At the annual meeting on May 1st it was stated that the payments in connexion with the reconstruction of the institution had been completed, and that donations and receipts from other sources for rebuilding purposes had amounted to some £93,000. The institution has thus, in the space of three or four years, since the programme of reconstruction and re-equipment was begun, acquired new funds for the joint purposes of rebuilding and research endowment in excess of £163,000.

Third International Pædiatric Congress

This Congress will take place in London on July 20th, 21st, and 22nd, under the presidency of Prof. G. F. Still, the meetings being held in the B.M.A. House by the courtesy of the British Medical Association. The Congress will be formally opened by H.R.H. the Duke of York, who will be accompanied by the Duchess, in the Great Hall of University College, Gower-street, at 10 A.M. on July 20th. Members of any recognised medical society are elegible for membership of the Congress if nominated by their own national representatives. The subscription for active members, medical men or women, is £2 (or £2 10*s.* to include a copy of the Transactions), and all subscriptions are payable in advance to Dr. Hugh Thursfield, the treasurer, 84, Wimpole-street, London, W.1. The official languages are English, French, German, and Italian. There will be general discussions at the morning sessions of July 20th and 21st, the subjects selected being: (1) Allergy and its Rôle in Diseases of Children, opened by Prof. Hamburger (Vienna), Dr. Pehu (Lyon), and Dr. Arnold Rich (Baltimore); and (2) Prophylaxis of Milk-borne Diseases, opened by Prof. Allaria (Turin), Prof. Bessau (Berlin), Prof. Lereboullet (Paris), and Prof. Pettersson (Stockholm). Nominations by the various national committees of persons to take part in these discussions should be forwarded to the Secretary of the Congress, Dr. Leonard Findlay, 61, Harley-street, W.1. The afternoon sessions of July 20th and 21st and the morning session of July 22nd will be occupied by the reading of independent papers, which must be in the secretary's hands not later than May 23rd. The Congress closes on the afternoon of Saturday, July 22nd, with a clinical demonstration of patients at the Great Ormond-street Hospital for Children.

A reception and information bureau will be opened at the B.M.A. House on Wednesday, July 19th, early in the morning, and be open on the various mornings of the Congress, and it is hoped that all members will register upon arrival. The functions that have been arranged are as follows: there will be an afternoon reception on July 20th at the Royal College of Physicians, the President of the College receiving; on the evening of that day a reception will be held by the President of the Congress; a dinner will take place at the May Fair Hotel, Piccadilly, on Friday the 21st, and members intending to be present should communicate as early as possible with the Secretary of the Congress or with Dr. Maitland-Jones (31A, Weymouth-street, W.), Secretary of the Entertainments Committee. Intending guests should state if they will be accompanied by ladies, and academic dress will be worn at the opening ceremony and at the reception by the President of the Congress.

Memorial to Dr. Parkin of Malton

The appeal made in a letter to our columns on Dec. 17th, 1932, has brought in £955 7*s*. 5*d*. Suitable insurance policies are being bought, and the Royal Medical Benevolent Fund has agreed to administer the money for the benefit of Dr. Parkin's boy and infant girl. The fund is now closed.

Aberdare General Hospital

The Duchess of York has just reopened this hospital, which was burned in 1929. It has been restored and partly rebuilt on modern lines at a cost of £29,000. The accidents ward has two theatres.

London Refraction Hospital

Last month Lord Burnham, master of the Spectacle Makers' Company, opened cubicles provided by the company at this hospital in Newington Causeway.

Bedford County Hospital

Last year the 1938 in-patients cost an average of £6 9*s*. 6*d*.; the cost per head of the household was £82 7*s*. A new X ray department is being built at a cost of £6000; the new apparatus will entail an expenditure of £2400.

Harrow and Wealdstone Hospital

The annual report records that the hospital was last year recognised as a training school for nurses, but they lack a sufficiently large lecture room and study. The out-patient accommodation is also inadequate. The revenue was £13,475, and the budget was balanced.

Bolingbroke Hospital

In 1932 this hospital at Wandsworth Common treated 2263 new in-patients, a slight falling off. They cost £2 16*s*. 5*d*. per head per week, and the 13,124 out-patients cost 11*s*. 9*d*. each. The pathological work has so much increased that £5000 is to be spent in building a new department.

Ransom Tuberculosis Sanatorium

This sanatorium at Rainworth, belonging to the Nottinghamshire county council, has just been enlarged from 130 to 150 beds, and the extensions were formally opened by Mrs. Ransom, the widow of Dr. W. B. Ransom, who originated the institution. There are 54 beds for women, 56 for men, and 40 for children. The cost has been £8700.

Florence Nightingale Hospital for Gentlewomen

This Lisson-grove hospital, which was founded by Lady Canning in 1850, in Harley-street, with Miss Florence Nightingale as its first lady superintendent, held its annual meeting last month. Last year 529 patients were admitted, an increase of 14. It was stated that the annexe, where patients receive treatment by appointment after leaving the hospital, has proved to be of the greatest value. Women of limited means receive free medical and surgical treatment. There are 38 beds, and a charge of £2 2*s*. a week is made for a cubicle in a ward of eight beds; a private room costs £4 4*s*. a week. Those who prefer to pay a medical or surgical fee can do so by arrangement, and they are free to be attended by a surgeon or physician of their choice.

Hospital Extensions

Lord Moynihan recently opened extensions of the Whitby War Memorial Cottage Hospital. The additions include new X ray and sunlight treatment rooms, an extension of the development room for X ray films, casualty and out-patients' wards, and radiologists' consulting-rooms. The work, which has cost £2700, was necessitated by pressure upon the radiological department, the hospital serving a radius of 15 miles.—The new Nunthorpe Maternity Home, provided by Grimsby corporation at a cost of £20,000, which has recently been opened, contains four wards of eight beds each and eight private wards.—The Bishop of Coventry has opened and dedicated a new theatre unit at Stratford-on-Avon General Hospital provided at a cost of £3000, as a memorial to the late Mr. Earnshaw Hewer, F.R.C.S.

Eye and Ear Hospitals

Last year the Royal Victoria Eye and Ear Hospital, Dublin, treated 2785 patients from all parts of Ireland, which gave an average of 115 beds occupied daily, and there were over 15,000 out-patients. The expenditure, at £13,385, exceeded the income by more than £3000, and the council find that to keep expenditure within income is an "almost impossible task."—Bradford Eye and Ear Hospital has reduced the cost of maintenance by 4*d*. per head per day in consequence of the lower cost of living and the increase in the number of persons provided for.—The annual report of the hon. surgeon of the Royal Eye Hospital, Eastbourne, states that the attendance in 1932 totalled 7718, of which 1129 were new cases. There were 173 operations, and the patients numbered 113; there were 154 more out-patients than in 1931.

University of Birmingham

It has been decided to endow a scholarship in the faculty of medicine bearing the name of Sir Gilbert Barling, consulting surgeon to the Birmingham General Hospital, who recently retired from the office of pro-chancellor. Promises amounting to more than £1000 have already been received, and contributions should be sent to the treasurer of the University, Edmund-street, Birmingham.

University of London Medical Graduates Society

The dinner and annual meeting of this society was held at the Langham Hotel on May 9th, the president, Lady Barrett, being in the chair. A large number of graduates attended, and the guests of the evening were Dr. A. M. H. Gray, dean of the faculty of medicine of the University, and the Master of the Society of Apothecaries. The president, in outlining the social programme which had been carried out in the past year, expressed the hope that many of those London medical graduates who had not yet joined the society would do so, and urged them to apply for particulars to the hon. secretaries at 11, Chandos-street, London, W. 1.

Undergraduates' Gift to Birmingham General Hospital

Three new beds, making a total of 18, which have been endowed from the proceeds of hospital carnivals held by undergraduates of Birmingham University were formally dedicated last week. The total amount received by the hospital from this source now exceeds £28,000.

A Sun Walk at Harrogate

On June 17th Lord Horder will open a new "sun walk" at Harrogate. It is a covered corridor built of glass which admits ultra-violet rays, and it runs from the pump-room and broadens into two bays near the new café and concert hall. The sun walk will cost £25,000 and is the first portion of a scheme which includes a new pump-room, the total scheme costing £60,000. It will be used for taking the waters in the morning and for concerts in the afternoons. In the evenings it will be illuminated.

St. Mary's Hospital, London

The deficit on last year's working was £7346, the largest since 1926. The 5341 in-patients were a slight reduction on 1931; out-patients' attendances fell by about 2000. During the last two years extensions have cost £250,000, and steady progress is being made with them. The accommodation for nurses has become inadequate owing to the increasing work of the hospital, and the cost of housing them in local hostels is too high. It is therefore hoped that the first part of the nurses' home will soon be finished.

Presentation to a Medical Officer of Health

At a meeting of the Hampstead division of the British Medical Association on May 11th a presentation was made to Dr. F. E. Scrase, F.R.C.S., for 20 years medical officer of health to the borough. Dr. L. S. Monckton Copeman, chairman of the division, and the presidents of the Hampstead Medical Society and Priory Medical Society, testified to Dr. Scrase's valuable work for Hampstead and in the cause of public health, and to the affection and respect in which he was held by all who had come in contact with him. Dr. Scrase, in reply, said that he had been a general practitioner in the borough before he became medical officer of health, and believed that he was the last of those who had passed from general practice to municipal work. He was confident that the best way to do the work of a medical officer of health was to sympathise with and understand the needs and difficulties of the general practitioner. If in any way he had failed to satisfy the practitioners with whom he had been brought into contact it was not for want of trying.

National Hospital, Queen-square

The report for 1932 emphasises the need for the proposed new buildings, the first part of which consists of a new pathological department having above it a surgical wing with 24 beds alongside a new home for male nurses. The cost will not be less than £70,000. The demand for more surgical beds is especially urgent, so that an end may be put to the practice of moving surgical patients shortly after operation back to medical wards. "An augmentation of the surgical wing would save many lives." Both the pathological department and the male nurses' home are "antiquated and almost intolerably inconvenient." A clinical research unit has been formed, thanks to a grant from the Medical Research Council to cover the scientific expenses for five years, and Dr. E. Arnold Carmichael has been appointed director. The daily average number of beds in occupation was 182, and the average stay 45 days, as compared with 41 days.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Spurious University Degrees

IN the House of Lords on May 10th Lord JESSEL moved the second reading of the University Spurious Degrees (Prohibition of Use and Issue) Bill. He said that he was bringing forward this measure on behalf of the Association of Scientific Workers, a body which represented a large number of graduates who felt that this evil bore more heavily on the genuine graduate than on the university authorities, inasmuch as graduates had to market their abilities in competition with the holders of these spurious degrees. Among the vice-presidents of the Association of Scientific Workers was Sir Charles Sherrington, O.M., professor of physiology at Oxford, and winner of the Nobel Prize in 1932, and among the honorary members were Sir Francis Fremantle, M.P., chairman of the House of Commons Medical Committee, and Sir E. Graham-Little, M.P. for London University. The Bill proposed that it should be a penal offence for any person to use any letters after his or her name which were used by any university within the United Kingdom or His Majesty's Dominions or Colonies to denote the holding of a degree unless such person actually held the degree specified, conferred by a recognised university as defined in the Bill. Further, the Bill made it a penal offence for any company, institution, organisation, or individual, not being a recognised university within the United Kingdom to confer degrees, purporting to be university degrees, for profit or otherwise. The Bill did not propose in any way to encroach upon any existing rights. For example, there were the Lambeth degrees conferred by the Archbishop of Canterbury. There was also the conferring of degrees honoris causa by any recognised university. The main purpose of the Bill was to eliminate the charlatan practitioner who trafficked in spurious degrees, and to prevent the purchase of those degrees with a view to victimising the public. The Association promoting this Bill had collected considerable evidence as to the extent of the practice. Of course, if these descriptions were definitely and directly used for the purpose of obtaining money under false pretences such procedures came within the Common Law. The offenders dared not confer or use medical degrees or they would come within the provisions of Section 40 of the Medical Act of 1858. If the medical, veterinary, dental, legal, and other learned professions were protected against fraud of this description, why should not the genuine holders of university degrees be protected from having to market their abilities in competition with the holders of these spurious degrees?

The Archbishop of CANTERBURY said that the evil with which this Bill was intended to deal was great. He wished he felt that the measure was the best that could be devised for meeting it. For instance, it could not deal very effectively with the greatest evil, which was the selling of degrees from alleged American universities. Also it threw an onus on the President of the Board of Education who, if he was willing to assume it, would excite his (the Archbishop's) great sympathy, because he had tried continually to find some authority in the United States, or in this country, to whom it could be referred to decide whether or not any particular degree-giving body was a recognised university. He was, however, grateful to Lord Jessel for bringing the Bill forward, because it might pave the way to some better Bill and call the attention of the universities throughout the country to the great need of protecting all that a degree ought to be in the social and educational life of the country.

"LAMBETH DEGREES"

The privilege of conferring what were called Lambeth degrees had been exercised by his predecessors for about 400 years, and was still exercised and its main objects were these: in the first place to give recognition and reward to conspicuous contributions to learning, art, and science, in the cases of persons who had either not been at any university or had been at a university which had not conferred degrees in respect of the subjects concerned. In the case of medical degrees it was provided in the Medical Act that even if a person had a medical degree from Lambeth he was not thereby entitled to practise unless his name was on the register of the General Medical Council. The privilege of granting these Lambeth degrees had been always exercised by his predecessors and himself—and he hoped would be by his successors—with the greatest possible care.

After further debate, Lord IRWIN (President of the Board of Education) said that so far as the Government were concerned, they would raise no opposition to the second reading of the Bill, but they wished to make some reservation as to any further action in regard to the Bill which would naturally depend on the results of consultations between Lord Jessel and the universities.

The Bill was read a second time.

Pharmacy and Poisons Bill

The Pharmacy and Poisons Bill was considered by Standing Committee of the House of Commons on May 9th.

PURCHASE OF "ARTICLES IN COMMON USE"

On Clause 17 (Preparation of list of poisons for the purposes of the Act) Mr. GLOSSOP moved an amendment which was designed to secure that the public should have facilities for purchasing from the usual sources of supply articles in common use which were not mainly intended for the treatment of human ailments. He said that there were many articles which could be used for the treatment of human ailments and for veterinary purposes. A disinfectant, for example, used in a cow-house could be just as efficiently used as a gargle. His objection to the section as it stood was that he felt that there were definite indications that the Pharmaceutical Society were trying to secure as much control as they could. No additional protection was afforded by restricting the sale of such things as aspirin or household ammonia, which were invariably sold in the same containers in which they were received from the manufacturers, and if the clause remained as it was at present it afforded no guide to the Poisons Board.

The hon. Member produced for the inspection of the Committee a number of articles such as gin, tobacco, a wireless battery, fireworks, a lavatory cleanser, paint used by artists, and benzine for cleaning purposes, all of which, he said, contained poison sufficient to cause death.

Continuing Mr. GLOSSOP said that for some years it had only been possible to purchase lysol from authorised sellers of poisons, but that had not prevented suicides. If people could not commit suicide in one way they would commit it in another. From 1901 to 1919 there were 24 deaths from negligence in the use of lysol, and during the same period 24 deaths by suicide. From 1920 to 1924 the number of deaths rose from 24 to 295. From 1926 to 1930 the deaths from negligence in the use of lysol rose to 1567. He suggested that that was largely due to advertising these poisons. He did not think that by restricting the sale of these articles to authorised sellers of poisons they would minimise the risk; and the number of suicides by the use of lysol proved his case.

Mr. HACKING (Under-Secretary to the Home Office) in resisting the amendment, said that the danger which might arise when these poisons got into the hands of inexperienced people was one of the reasons why the Government wanted the business in the hands of an experienced board who could

determine the degree of danger in any of these poisons. The Secretary of State had power to consider the recommendations of the Poisons Board, and he was not likely to prevent such an article as gin being sold by anyone but a qualified pharmacist. There was nothing to prevent the Poisons Board saying that any of the things which Mr. Glossop had exhibited to the Committee should be bought from the usual sources of supply.

After further discussion the amendment was rejected by 20 votes to 5.

"UNDUE EXTENSION" OF THE POISONS LIST

The Bill was further considered in Committee on May 11th, when Mr. GLOSSOP moved an amendment to Clause 17 providing that regard should be had to the desirability of not restricting sales of chemical products unless it should be shown that the substance was used, or was likely to be used, for criminal purposes, or to be a frequent cause of deaths due to bona fide accidental causes. He said that it was essential that the Poisons Board should be warned against an undue extension of the poisons list. Most poisons which were the cause of accidental death could be dealt with by proper labelling, and he saw no reason for granting monopoly in regard to sales to anyone except when they were able to control them rigidly and knew exactly where a poison was going.

Mr. HACKING said that while there might be some truth in the statement that it was difficult to stop suicides, it would be wrong to suggest that they should assist suicides, as he thought would be the case if the Committee passed this amendment. It was impossible for the Poisons Board to assess whether a poison was likely to be used for criminal purposes or to be a frequent cause of death. The effect of the Bill would not be restrictive. Part II. would definitely help the sale of poisons by people who in the past had not been able to sell them, but to give the proposed instruction to the Board was really going too far.

The amendment was negatived.

MEMBERSHIP OF THE POISONS BOARD

On the Second Schedule (Constitution of Poisons Board) Mr. GLOSSOP moved to increase the number of members of the Poisons Board from 16 to 18. He said that when the Second Schedule of the Bill was being considered in the House of Lords it included no provision for a representative of the General Medical Council on the Poisons Board, but the General Medical Council made representations to the Government and it was agreed that one member of the Board should represent that body. He thought that the interests of the veterinary profession should also be represented on the Board, and also that there should be a member of the Board with some knowledge of the manufacture of general chemical products.

Mr. HACKING said that the real reason for the Bill was the protection of human life, not that of animals. Veterinary surgeons might be interested in the rules to be made under the Bill, and the Royal College of Veterinary Surgeons had been given an assurance that the fullest possible opportunity would be given for the submission of any representation they desired to make before any rules were made. He was assured that the Association of Chemical Manufacturers did not desire to have representation on the Poisons Board. In these circumstances he hoped that the amendment would not be pressed.

The amendment was negatived by 13 votes to 9.

The Committee stage of the Bill was concluded, and the measure was ordered to be reported to the House.

Essex County Council Bill

The Essex County Council Bill which, among other things, seeks powers for the protection of streams, the prohibition of pollution, and the control and licensing of massage establishments was considered by a select committee of the House of Lords on May 4th. The Bill contains provisions to safeguard establishments carried on by medical practitioners. Lord REDESDALE presided. Mr. CRAIG HENDERSON, who appeared for the Essex County Council, said that one of the objects of the Bill was to prevent the pollution of rivers and streams in the county. That problem had become much more serious with the developments of industry and the increase in the population. There was a consequently greater demand for water for domestic and trade purposes, and all the principal rivers and streams were now called on to provide a supply. To safeguard the health of the people it was important that that supply should be kept pure. The Bill contained clauses for the protection and improvement of the waterways, and to prevent the discharge into streams of sewage or offensive or injurious matter.

Dr. W. A. BULLER, medical officer of health for Essex, said that it was most important from the point of view of health that the tributaries and the main rivers should be maintained in a pure state. To achieve this it was necessary that the county council should have the powers given in the Bill. It was endeavoured, by certain of the clauses in the Bill, to safeguard the purity of the public water-supply without interfering with trade or industry more than was absolutely inevitable.

Dealing with the proposals for the control of establishments for massage and special treatment, Mr. Henderson said that in certain cases the special electrical treatment might be a grave danger to health. If such establishments were allowed to be carried on without control there might be abuses of a very grave character. In 1920, the London County Council obtained powers to bring these establishments under control by a system of licensing and registration. Other counties had obtained similar powers, and the Essex County Council were now asking for such powers.

Counsel for the corporations of Ilford, Walthamstow, Barking, and Leyton, while agreeing that there ought to be control of such establishments, contended that that control could be better exercised by the local authorities themselves than by the Essex County Council.

Mr. A. G. CHAMINGS said that until 1931 he was chief officer of the Public Control Department of the London County Council, and was responsible for carrying out the law relating to establishments for massage and special treatment. He said that he had known instances in which persons engaged in this treatment, against whom there had been complaints, had migrated from London to the neighbouring counties and had carried on their treatment, which in some cases was very dangerous. He had known a man tell the committee of the county council "If you go on like this, we shall simply go outside London." Other counties had now obtained powers of control. It would, he thought, be hopeless to have the administration of the powers of control devolved among the local authorities in the county: the administration would be much more efficient if it were retained by the central county authority.

Matrimonial Causes Bill

In the House of Commons on May 12th the debate was resumed on the second reading of the Bill to make incurable insanity for a period of five years a ground for divorce, and was again adjourned owing to the House being counted out.

Rent Restrictions (Amendment) Bill

In the House of Commons on Tuesday, May 16th, Sir E. HILTON YOUNG (Minister of Health) moved the third reading of the Rent and Mortgage Interest Restrictions (Amendment) Bill. He said that the Bill directly affected 7,000,000 houses and he thought that it was remarkable that a measure which was so intimately connected with the domestic life of so many people should have passed through the House in an atmosphere entirely free from any heat or acrimony. He thought that the House would be satisfied that the interests of both occupiers and house owners had been considered in a spirit of fair play. The

principal object of the Bill, which was part of the housing policy of the Government, was to maintain a pool of small houses available for the lower paid wage-earners during the remainder of the period when it might be anticipated that the supply of these houses would not equal the demand. The Act would operate for a fixed period of five years. Society as a whole would be benefited by the provisions of the Bill against the overcrowding of houses by tenants.

Mr. BUCHANAN moved the rejection of the Bill.

The motion for rejection was negatived by 301 votes to 6, and the Bill was then read the third time.

HOUSE OF COMMONS

THURSDAY, MAY 11TH

Water-supply

Mr. CHORLTON asked the Minister of Health if he would seek legislative powers to enable him to compel an authority which had an excess in its water-supply to make that excess available for, or put it at the service of, other districts where a scarcity existed.—Sir E. HILTON YOUNG replied: Experience indicates that there is not a sufficient case for further legislative powers. Where an authority has a real surplus of water, it is usually glad to find customers. Where difficulties occur, I am glad to use my good offices.

Death-rate at Stockton-on-Tees

Mr. LAWSON asked the Minister of Health whether he could state the result of his consideration of the report of the medical officer of health for Stockton-on-Tees on the death-rate for the Mount Pleasant area, which had averaged 33·55 per 1000 of the population for the last five years, as compared with the death-rate for the same period of 10·5 for England and Wales.—Sir E. HILTON YOUNG replied: This report is still under consideration, and requires inquiries in other areas, which I am causing to be made.

Young Persons and Sexual Offences

Mr. RHYS DAVIES asked the Home Secretary whether, in view of the growing practice in a certain section of the press of publishing the names of juvenile offenders, particularly in connexion with sexual offences, charged in summary courts of justice, he would issue a circular recommending magistrates to request all press reporters to refrain from this practice.—Sir J. GILMOUR replied: As the hon. Member is no doubt aware, the effect of Sections 39 and 49 of the Children and Young Persons Act, 1933, will be to prohibit generally the publication of the name of any child or young person concerned in any proceedings in a juvenile court, and to enable any other court to direct that no newspaper report shall reveal the name of any child or young person concerned in any proceedings in the court which arose out of any offence against decency or morality. These provisions will take effect on Nov. 1st, the date on which I propose to bring the Act into force. I have no evidence of any such growing practice as the hon. Member refers to, and as I feel sure that the press generally may be relied on to give effect to the spirit of the provisions contained in the Act, I do not think it necessary to issue any special circular to magistrates.

MONDAY, MAY 15TH

Imports of Processed Milks

Major DESPENCER-ROBERTSON asked the Minister of Agriculture whether he had yet taken any steps to consult with the countries importing processed milk products into Great Britain with a view to arranging for a restriction of such products in our market.

Sir GIFFORD FOX asked the Minister of Agriculture if he could make a statement with regard to the action which he intended to take to promote the welfare of the British dairy industry; and whether, in view of the menace to that industry from the increasing stocks of condensed skimmed milk in this country, he would give early consideration to this branch of agriculture.—Major ELLIOT replied: Following the debate in this House on Wednesday of last week, I invited representatives of foreign countries from which we import processed milks to meet me on Saturday, May 15th, when I discussed the position with them. Having regard to the increasing supplies of home-produced milk now being diverted to manufacture, to the accumulation of stocks in manufacturers' hands, and to the urgent need of providing market-access for the larger home output, I felt bound to ask, as an emergency measure, for a substantial reduction in imports of tinned cream, of condensed whole and condensed skimmed milk, and of milk powder in order to establish more stable conditions on the market in the interests of all concerned. A further meeting will take place in the course of a few days and I have every hope that an adequate measure of voluntary coöperation will be forthcoming in this further effort to deal with a supply-situation which was rapidly getting out of hand. I should add that, in conjunction with my right hon. friend, the Secretary of State for the Dominions, I am arranging for an early consultation with Dominion representatives.

TUESDAY, MAY 16TH

Public Health Services in Scotland

Mr. GUY asked the Secretary of State for Scotland whether he proposed to institute an inquiry into the public health services, as recommended by the Local Government (Scotland) Committee.—Mr. SKELTON (Under Secretary of State for Scotland) replied: My right hon. friend proposes to adopt the recommendation of the Committee on Local Expenditure that he should institute an inquiry into the public health services in Scotland. He hopes to be in a position to announce the personnel and the terms of reference of the proposed committee shortly.

Industrial Pulmonary Diseases

Sir WILLIAM JENKINS asked the Secretary for Mines what steps were being taken to put into operation the report of the Medical Research Board on silicosis and anthracosis in mines; and if any remedial measures were contemplated at any early date.—Mr. E. BROWN replied: Research into industrial pulmonary diseases is directed by a committee under the Medical Research Council, and an account of the work is included in the annual reports of the Council. No fresh findings as regards mining have as yet been reported by the committee, but in the meantime increased attention is given by H.M. Inspectors to secure the effective use of dust preventive measures wherever they are considered to be necessary: and practical work for the improvement of such methods is the constant duty of a special inspector attached to the Mines Department.

Mr. D. GRENFELL asked whether the committee had recommended the use of appliances to prevent the inhalation of stone dust.

Mr. E. BROWN said that if the hon. Member would see the latest report (Command Paper 4,248) he would see that there were difficulties.

Sir WILLIAM JENKINS asked the Home Secretary what number of people had made claims for compensation in the South Wales mines who were suffering from silicosis and what number from anthracosis; what number had succeeded in their claims; the number refused; and upon what grounds their claims failed, from January, 1928, to the last available date.—Sir J. GILMOUR replied: I regret that I am not in a position to give the information asked for, and I would point out that anthracosis is not a disease for which compensation is provided under the Workmen's Compensation Act. I am advised that it has not yet been established that the condition of the lungs described as anthracosis gives rise to any disabling condition. I may add that the Miners' Federation have made representations to me regarding certain cases in which miners suffering from silicosis have not obtained compensation, and that I am in communication with them in the matter.

Mr. GRENFELL asked whether cases of anthracosis had proceeded as far as the courts, and if the applicants had failed to satisfy the courts that the disease was one for which compensation ought to be paid. He also asked if the Home Secretary had a record of anthracosis cases as well as silicosis cases, and if he would supply information to show how many cases put forward on those grounds had been turned down.

Sir J. GILMOUR said that he was advised that anthracosis did not come under the terms that they were discussing. As regarded the other matter which he was discussing with the miners' representatives, until he had concluded the discussion with them he could say nothing further.

Mr. GRENFELL asked if it was not the case that the applicants or the dependents of a person who had died or been disabled were handicapped because of the failure of the medical profession and the medical officers of the Home Office to make a correct diagnosis as between those two kinds of cases.

Sir J. GILMOUR said that all those matters were being taken into consideration.

Pensioners and Treatment Allowances

Mr. TINKER asked the Minister of Pensions the number of cases at present in receipt of treatment allowances; and if he would give the figures for the 12 months ending 1932.—Major G. C. TRYON replied: I regret that, without analysis of all the individuals accounts, it is not possible to give the precise information asked for by the hon. Member. I may say, however, that at the end of April of this year, apart from those in mental hospitals, there were 3020 men in

hospital receiving medical or surgical treatment from the Ministry, and certainly the great majority of these would be in receipt of treatment allowances. The corresponding figure at the end of December, 1932, was 2981.

Anti-diphtheria Inoculation in Italy

Mr. GROVES asked the Minister of Health whether he had received information regarding the deaths of ten children and the serious injury of a number of others from inoculation against diphtheria in the provinces of Venezia and Rovigo, in Italy; and, if not, whether he would obtain full iinformation respecting these cases and publish it.—Sir E. HILTON YOUNG replied: I have so far no information on this subject beyond what has appeared in the public press, but steps are being taken to obtain an official report. I will consider the question of publication when the information is available.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, May 22nd.—8 P.M., ODONTOLOGY. Annual General Meeting at the Royal College of Surgeons. Sir Frank Colyer will show new specimens received in the Museum during the past year.

TUESDAY.—5 P.M., MEDICINE. Annual General Meeting. 5 P.M., THERAPEUTICS AND PHARMACOLOGY. Annual General Meeting at the National Institute for Medical Research, Mount Vernon, Hampstead, N.W. Demonstrations: H. H. Dale and E. Schuster: An Apparatus for Continuous Injection. M. K. McPhail: Effects on Rats of the Prolonged Administration of Substances Stimulating the Ovary. R. Deanesly: Oil as a Medium for Subcutaneous Injections. P. Hartley: International Biological Standards. Papers: J. M. Lees and M. S. Pembrey: Effects of Anæsthetics on Gastric Mobility. J. H. Gaddum: Some Vasodilator Substances Obtained from Tissues.

WEDNESDAY.—4.30 P.M., COMPARATIVE MEDICINE. Annual General Meeting at the National Institute for Medical Research. Demonstration will be given by Members of the Staff of the Institute.

THURSDAY.—8.30 P.M., UROLOGY. Annual General Meeting. Discussion: Per-urethral Treatment of the Enlarged Prostate. Opener: Mr. J. Everidge, followed by Mr. K. Walker, Mr. T. E. Hammond, Mr. T. J. Millin, Mr. E. W. Riches, and Mr. F. McG. Loughnane.

FRIDAY.—5.30 P.M., DISEASE IN CHILDREN. (Cases at 4.30 P.M.) Annual General Meeting. Cases will be shown. The Meeting will be held conjointly with the Maternity and Child Welfare Group of the Society of Medical Officers of Health. The subject for consideration will be Anæmia. 8 P.M., EPIDEMIOLOGY AND STATE MEDICINE. Annual General Meeting. Dr. James Watt: The Heating, Lighting, and Ventilation of Hospital Wards.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

FRIDAY, May 26th.—5 P.M., Joint meeting of the metropolitan branch with the food group of the Society of Chemical Industry (at the London School of Hygiene and Tropical Medicine, Keppel-street, London, W.C.). Dr. H. D. Haldin-Davis: Prevention of Industrial Diseases of the Skin.

Maternity and Child Welfare Group. See Royal Society of Medicine.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY.

WEDNESDAY, May 24th.—4.15 P.M. (at 49, Leicester-square, W.C.), Annual Meeting, followed by demonstration of clinical cases.

MEDICO-LEGAL SOCIETY.

THURSDAY, May 25th.—8.30 P.M. (at 11, Chandos-street, W.), Mr. W. G. Earengey, LL.D.: The Legal Consequences of Shock.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, May 22nd, to SATURDAY, May 27th.—MAUDSLEY HOSPITAL, Denmark-hill. Course in Psychological Medicine, every afternoon.—ST. JOHN'S HOSPITAL, Leicester-square, W.C. Course in Dermatology. Clinical instruction every afternoon and evening. Lectures daily at 5 P.M.—QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road. Course in Diseases of Children. All-day instruction given.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street. Course in Gynæcology, mornings and/or afternoons.—LONDON LOCK HOSPITAL, 91, Dean-street. Course in Venereal Disease, afternoons and evenings.—HOSPITAL FOR CONSUMPTION, Brompton. Week-end Course in Diseases of the Chest. All day, Sat. and Sun.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square. Lecture on Cataract Extraction by Lieut.-Colonel R. H. Elliot at 5 P.M. on Wed. (Primarily intended for general practitioners.)—LAMBETH HOSPITAL, Brook-street, S.E. Demonstration of Specially Selected Cases by Dr. G. F. Stebbing, assisted by the Staff of the Hospital, on Fri. at 2 P.M.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, May 22nd.—10 A.M., Medical and Gynæcological Wards, Skin Clinic. 11 A.M., Surgical Wards. 2 P.M., Operations, Medical, Surgical, Eye, and Gynæcological Clinics. 4.15 P.M., Lecture, Dr. Post: X Rays of the Chest.

TUESDAY.—10 A.M., Medical Wards. 11 A.M., Surgical Wards. 2 P.M., Throat Clinic, Medical and Surgical Clinics. Operations. 4.15 P.M., Lecture: Mr. Tyrrell Gray: Surgery of the Upper Abdomen.

WEDNESDAY.—10 A.M., Medical and Children's Wards, Children's Clinic. 2 P.M., Operations, Medical, Surgical, and Eye Clinics. 4.15 P.M., Lecture: Dr. Carter Braine: X Ray Therapy.

THURSDAY.—10 A.M., Neurological and Gynæcological Clinics. 11.30 A.M., Fracture Clinic. 2 P.M., Operations, Medical, Surgical, Eye, and Genito-urinary Clinics.

FRIDAY.—10 A.M., Skin Clinic. 12 noon, Lecture on Treatment. 2 P.M., Operations, Medical, Surgical, and Throat Clinics. 4.15 P.M., Lecture: Mr. Green-Armytage: Gynæcological Diseases—the Result of Obstetrics.

SATURDAY.—10 A.M., Medical and Surgical Wards, Children's and Surgical Clinics. The lectures at 4.15 P.M. are open to all medical practitioners without fee.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, May 24th.—4 P.M. (at the Battersea Mortuary), Sir Bernard Spilsbury: The Post-mortem Examination.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

MONDAY, May 22nd.—10–11 A.M., Dr. Hutchison: The Dyspepsias of Childhood. 11–12 noon, Dr. Shires: X Ray Demonstration: Diseases of the Bones, Rickets, Scurvy, &c. 12–1 P.M., Dr. Wyllie: The Blood Disorders in Childhood. 2 P.M., Dr. Thursfield: Ward Visit. 3 P.M., Dr. Bray: The Treatment of Allergic Conditions.

TUESDAY.—10 A.M., Dr. Pearson: Treatment of Epilepsy and Infantile Convulsions. 11 A.M., Dr. Hawksley: Common Anæmias of Infancy and Early Childhood. 12 noon, Dr. Schlesinger: Asthma. 2 P.M., Dr. Wyllie: Behaviour Problems and the Backward Child. 3 P.M., Dr. Signy: The Cytological Examination of the Blood.

WEDNESDAY.—10 A.M., Mr. Addison: Chronic Pyuria. 11 A.M., Dr. Poynton: Ward Visit. 12 noon, Dr. Gray: Diseases of the Skin. 2 P.M., Mr. Lloyd: Burns and Scalds. 3 P.M., Dr. Payne: Biochemical Methods of Investigation in Nephritis.

THURSDAY.—10 A.M., Dr. Hutchison: Ward Visit. 11 A.M., Mr. Higgins: Osteomyelitis. 12 noon, Dr. Cockayne: Obesity in Children. 2 P.M., Dr. Thursfield: Cœliac Disease. 3 P.M., Dr. Nabarro: Congenital Syphilis.

FRIDAY.—10 A.M., Mr. Barrington-Ward: Hirschsprung's Disease. 11 A.M., Dr. Schlesinger: Significance of Enlargement of Liver and Spleen. 12 noon, Mr. Tyrrell-Gray: Ward Visit. 2 P.M., Dr. Frew: Ward Visit. 3 P.M., Dr. Moncrieff: Congenital Heart Disease.

SATURDAY.—10 A.M., Dr. Poynton: The Treatment of Carditis in Children. 11 A.M., Mr. Browne: Treatment of Empyema. 12 noon, Dr. Paterson: Selected Cases.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.

THURSDAY, May 25th.—3 P.M., Dr. Russell Brain: Vertigo. Demonstration.

PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN, Shadwell, E. 1.

FRIDAY, May 26th.—8.45 P.M., Sir Henry Gauvain: Work at the Treloar Hospitals at Alton and Hayling Island

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, May 24th.—4.30 P.M., Mr. C. H. Mills: Some Interesting Urological Cases; with demonstration of pathological specimens and radiograms.

ST. PETER'S HOSPITAL FOR STONE, Henrietta-street, W.C.

WEDNESDAY, May 24th.—3 P.M., Dr. Cuthbert Dukes: Urinary Calculi.

BRITISH RED CROSS CLINIC FOR RHEUMATISM, Petopiace, N.W.

TUESDAY, May 30th.—8.15 P.M., Dr. Gilbert Scott: Sacro-iliitis—its Relation to Spondylitis and other Rheumatic Conditions. (Clinic open for inspection from 7.15 P.M.).

NATIONAL HOSPITAL, Queen-square, W.C.

TUESDAY, May 23rd.—6 P.M., Dr. Symonds: The Cerebro-spinal Fluid in Disease.

THURSDAY.—6 P.M., Dr. Riddoch: Encephalitis.

ST. MARK'S HOSPITAL, City-road, E.C.

THURSDAY, May 25th.—4.30 P.M., Mr. J. P. Lockhart-Mummery: Incontinence of the Rectum.

THE LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

MONDAY, May 22nd.—5 P.M., Dr. H. Haldin-Davis: Drug Eruptions.

TUESDAY.—5 P.M., Dr. A. C. Roxburgh: Differential Diagnosis of Some Common Skin Diseases.

THURSDAY.—5 P.M., Dr. A. M. H. Gray: Sclerema.

FRIDAY.—5 P.M., Dr. W. J. O'Donovan: Tuberculosis of the Skin.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, May 23rd.—4.15 P.M., Dr. D. Dougal: The Physiology of Menstruation.

FRIDAY.—4.15 P.M., Dr. P. B. Mumford: Demonstration of Dermatological Cases.

ROYAL INFIRMARY, Glasgow.

WEDNESDAY, May 24th.—4.15 P.M., Mr. Arthur Jacobs: Urology.

Appointments

OULTON, R. H. G., L.R.C.P. Irel., L.R.C.S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Falmouth District of the County of Cornwall.

WEIR, A. L., M.B., B.Ch. Belf., Medical Officer to the Derry Post Office.

Vacancies

For further information refer to the advertisement columns

All Saints' Hospital, Austral-street, West-square, S.E.—Res. H.S. At rate of £100.

Ashton-under-Lyne District Infirmary.—H.S. At rate of £150.

Bath, Royal United Hospital.—H.S. Also Out-patient and Cas. O. Each at rate of £150.

Bedford County Hospital.—First and Second H.S. At rate of £165 and £140 respectively.

Birmingham University, Faculty of Medicine.—Professorship of Physiology. £1000.

Board of Education, Whitehall, S.W.—M.O. £726.

Bolton Royal Infirmary.—H.S. £125.

Brighton Sanatorium and Infectious Disease Hospital.—Jun. Res. M.O. At rate of £150.

Charing Cross Hospital, W.C.—Hon. Clin. Asst. to Radiological also Dermatological Depts.

Chelsea Hospital for Women, Arthur-street, S.W.—Jun. H.S. At rate of £100.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P. At rate of £100.

City of London Maternity Hospital, City-road, E.C.—Asst. Res. M.O. At rate of £80.

Denbigh, North Wales Counties Mental Hospital.—Asst. M.O. £500.

Dewsbury and District General Infirmary.—Second H.S. £150.

Doncaster Royal Infirmary.—H.S. and Cas. H.S. Each £175.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Jun. Asst. Pathologist. £250. H.P., Obstet. Asst., and Three H.S.'s. Each at rate of £50. Also Two Med. and Surg. Regs. Each £100.

Erith U.D.C.—Asst. M.O.H. and Asst. School M.O. £500.

Freemasons' Hospital and Nursing Home, 237, Fulham-road, Chelsea, S.W.—Res. M.O. At rate of £250.

Hampshire, C.C.—Asst. County M.O. £600.

Herefordshire General Hospital.—H.S. and Cas. O. At rate of £100.

Hôpital et Dispensaire Français, 172, Shaftesbury-avenue, W.C.—Asst. Dental S.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Med. Reg. £100.

Hull Royal Infirmary.—Cas. O. £150. Also H.P. for Sutton Branch. £160.

King's Lynn, West Norfolk and King's Lynn General Hospital.—H.P. At rate of £125.

Kingston-upon-Hull Maternity Home and Infants' Hospital.—Jun. Res. M.O. At rate of £100.

Lancaster County Mental Hospital.—Asst. M.O. £500.

Leicester Roy. Infirm.—Res. Asst. Anæsthetist. At rate of £250.

Liverpool Hahnemann Hospital, Hope-street.—Res. M.O. At rate of £100.

Liverpool, Royal Southern Hospital.—Hon. Asst. Orthopædic Surg.

Liverpool, Women's Hospital, Catharine-street.—H.S. At rate of £100.

Luton, Children's Hospital.—Consulting Surgeon and Physician.

Manchester Babies' Hospital.—Sen. Res. M.O. At rate of £125.

Manchester, City.—Asst. Tuberculosis O. £650.

Manchester University.—Prof. of Dental Surgery and Director of Dental Hospital.

Market Drayton, Cheshire Joint Sanatorium.—Res. Asst. M.O. £350.

Miller General Hospital, Greenwich-road, S.E.—Cas. O. and Out-patient O. Each at rate of £150. And H.S. and H.P. Each at rate of £100.

National Hospital for Diseases of the Nervous System, Queen-square, W.C.—H.P. £150.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Med. Reg. £248 15s.

Norwich, Norfolk and Norwich Hospital.—H.S. £120.

Park (Fever) Hospital, Hither Green, Lewisham, S.E.—Res. Asst. M.O. £350.

Plymouth, Central Hospital.—Res. H.S. At rate of £150.

Plymouth Public Dispensary.—Hon. M.O.

Plymouth, S. Devon and E. Cornwall Hospital.—Two H.S.'s. Each at rate of £100.

Preston, Biddulph Grange Orthopædic Hospital.—Sen. and Jun. H.S.'s. At rate of £250 and £150 respectively.

Princess Louise Kensington Hospital for Children, St. Quintin-avenue, W.—H.P. and H.S. Each at rate of £75.

Queen Mary's Hospital for the East End, E.—Cas. O. At rate of £150. Also H.P.'s and H.S.'s. All at rate of £120.

Queen's Hospital for Children, Hackney-road, E.—H.P. and Cas. O. Each at rate of £100.

Rochester, St. Bartholomew's Hospital.—Res. Surg. O. At rate of £225.

Royal Chest Hospital, City-road, E.C.—Physician.

Royal Free Hospital, Gray's Inn-road, W.C.—First H.S. Also Cas. O. At rate of £150. Also H.P.'s, H.S.'s, and Res. Anæsthetist. Also District Obstetric Asst. At rate of £100.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.S. At rate of £100.

St. Helens Hospital, Lancs.—Jun. H.S. £150.

St Leonard's Hospital, Hoxton-street, Shoreditch, N.—Res. H.P. At rate of £80.

St. Marylebone General Dispensary, 30, Marylebone-lane, W.—Hon. Surg. to Ear, Nose and Throat Dept.

St. Mary Abbot's Hospital, Marloes-road, Kensington, W.—Res. Asst. M.O. £350.

St. Mary's Hospital, W.—Med. Reg. £200.

St. Thomas's Hospital, S.E.—Surg. Reg. and Tutor.

Sheffield Children's Hospital.—Res. M.O. £175.

Sheffield, Jessop Hospital for Women.—H.S. for Maternity Dept. At rate of £120. Also H.S. At rate of £100.

Sheffield, Winter Street Hospital.—Asst. Tuberculosis Officer. £350.

South Eastern Hospital for Children, Sydenham.—Jun. Res. M.O. At rate of £120.

Southend-on-Sea General Hospital.—Sen. Res. M.O. £300.

Stockwell College, London, S.W.—M.O. £100.

University College, W.C.—Sharpey Physiological Scholarship. £200.

Warrington Infirmary and Dispensary.—Jun. H.S. £175.

Westminster Hospital, Broad Sanctuary, S.W.—Asst. Physician for Diseases of Children.

Windsor, King Edward VII. Hospital.—Two H.S.'s. Each at rate of £100.

Worcester Royal Infirmary.—Third H.S. £120.

York County Hospital.—H.P. £150.

York, North Riding Mental Hospital.—Res. Asst. M.O. £350.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at St. Albans (Hertfordshire), Stone (Stafford), and Staveley (Derbyshire).

Births, Marriages, and Deaths

BIRTHS

RAKE.—On May 7th, at "Fairhaven," Wadhurst, the wife of Dr. John S. Rake, of a son.

SAVEGE.—On May 15th, at Pembroke House, Richmond, the wife of Ronald Savege, F.R.C.S. Edin., of Harley-street, W., of a son.

SHEPHERD.—On May 9th, the wife of Dr. C. W. Shepherd, Elmsfield, Newport-road, Cardiff, of a daughter.

MARRIAGES

WOOD—KEELE.—On May 2nd, at Holy Trinity, Wandsworth, Ernest Alan Wood, M.D., M.R.C.P., to Edith Ruby, only daughter of Joseph Keele, Esq., of Putney and Shamley Green.

DEATHS

ALLEN.—On May 4th, at Queen's-road, Loughton, William Percival Allen, L.M.S., L.M.S.S.A., aged 73 years.

CLIFFORD.—On May 11th, at Roseleaf, Rastell-avenue, Streatham-hill, Dr. Frank Clifford, formerly Tuberculosis Officer for Swansea.

HINDMARSH.—On May 10th, at Lyme Regis, Edwin Andrew Cuthbert Hindmarsh, F.R.C.S. Edin.

STOKES.—On May 3rd, Lennard Stokes, M.R.C.S., L.R.C.P., of Upton, Andover, Hants, and Blackheath.

TYSON.—On May 9th, at a nursing-home in London, Wilson Tyson, M.D. Camb., F.R.C.S. Edin., aged 64 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN.—The enlarged in-patient department was in use during the whole of last year; there are now 40 beds, and the work of the department can be carried on in improved conditions. The cost has been fully discharged, but the provision of pay-beds has been postponed until times are more propitious. The out-patient department is doing double the work that was being done when the building was altered in 1905, but the accommodation remains the same, and sooner or later, the annual report says, it will be imperative to acquire new out-patient accommodation in some central part of London. Last year out-patients contributed £5113 and in-patients £991 towards the cost of treatment and maintenance.

NOTES, COMMENTS, AND ABSTRACTS

PISTOL OR POLEAXE

The Humane Slaughter of Animals Bill, sponsored by Colonel T. C. R. Moore, Mr. John Buchan, Lady Iveagh, Sir Ernest Graham-Little, and others, was read a second time without a division in the House of Commons on April 7th.

As a race we pride ourselves on our sympathy with animals. "Look," we say, "at the way the foreign peasant treats his donkey—the blackguard!" And we are notoriously sentimental about dogs. Yet in the matter of the humane slaughter of animals for food we lag behind our Europen contemporaries. The death which a calf is required to face should be enough to sicken the appetite of a prodigal son, but we go on eating veal without emotion. Most people, indeed, believe that (in a phrase) "all that cruelty is a thing of the past, nowadays." When they are told that this is not the case—that calves are still strung up by their hind legs, alive and conscious, to have their throats slit—they looked pained, and say that they hope it will soon be stopped; but they do nothing more about it.

In writing "Pistol versus Poleaxe," Miss Lettice Macnaghten has performed a service which should be welcome to those who like to see an argument impartially set out. Herself a partisan of the humane slaughter of animals, she has carefully weighed both sides of the question, and if the balance is overwhelmingly in favour of her own view, it is swayed purely by the weight of solid evidence. To witness something detestable in order to attack it with more knowledge calls for a high degree of courage. Miss Macnaghten has watched the slaughter of animals not once but many times. In this country cattle, before they are bled, are usually stunned by means of the poleaxe, wielded by a man who may (or may not) be an expert, but who, in any case has had to acquire his experience upon living beasts. A successful blow fells a cow or bull outright; failure may mean that the skull has to be repeatedly battered, that an eye is knocked out of its socket, or that the stumbling animal breaks its horns in its efforts to escape. The killing of sheep is often entrusted to boys or incompetent men; the sheep is laid on a crutch or on the ground, the neck is forcibly extended, and a knife is thrust through it behind the ears; with a second movement the blade is inserted between the joints of the vertebræ with the object of severing the spinal cord. The neck is then broken by bending the head forcibly backwards—a difficult thing to do; the object is not to shorten suffering but to make it easier to remove the head when dressing the carcass. Pigs are usually killed by having their throats cut; in bacon factories they are first hoisted up one after another, in quick succession, by means of a noose round a hind leg. In a few places they are first stunned with a club or mallet, but this is rare; the carcasses are flung into boiling water as soon as life is extinct; more than one case is recorded of imperfectly struck pigs being thrown into the scalding tank before consciousness was lost.

Apart from the direct cruelty of these methods of slaughter, animals are often terrified by being brought into the slaughter-house in groups of two or three, so that they watch while their fellows are butchered. The Jewish method of slaughter, in which the throat is cut across with an exceptionally sharp knife, is no less objectionable, since the animal is first thrown heavily to the stone floor in order to bring it into position for slaughter, and no method of stunning is used, even in the case of cattle. In any case when an animal is bled to death, consciousness lasts as a rule for three or four minutes. It all seems so unnecessary when instruments are available which quickly and effectively stun the animals for which they are designed, and when killing pens are obtainable in which the beast is automatically placed in the best position for slaughter. In Germany, Sweden, and Denmark humane methods of slaughter are the rule. In Scotland the use of the humane killer has been enforced by law since 1928, and in several of the large abattoirs in this country humane killers have been adopted with complete success.

The objections usually raised to the stunning of animals by mechanical instruments before slaughtering them is that bleeding is less effective, and that there is an added risk of accident to slaughtermen. Miss Macnaghten deals faithfully with both points. Experience has shown that experts cannot tell the difference between meat obtained from animals stunned with the humane killer before death and animals not so stunned, and she gives chapter and verse from various authorities in support of this. The second argument—that of danger to slaughtermen—is surely a little absurd in a country where boys are given air guns at the age of twelve or so, and where, in country districts, at all events, most villagers keep and use a sporting gun. During the war no one complained of putting nasty dangerous firearms into the hands of inexperienced soldiers; surely our butchers can learn to handle humane killers without hurting themselves. And as a matter of fact Miss Macnaghten is able to show that they are just as likely to suffer from careless handling of a poleaxe, or from unpredictable accidents in the slaughter chamber, as from the misuse of firearms. More commonly the instruments themselves suffer from want of proper care, and so grow old before their time.

In Brighton humane methods of slaughter have been employed since 1922; in 1928 Dr. Duncan Forbes, the medical officer of health, was able to report that there had been no accidents with humane killers in Brighton, although the number of animals slaughtered during 1926 had reached a total of 33,114, and in 1927 the still higher figure of 34,428. This appears to be a strong testimonial. Gradually more and more butchers are adopting mechanical killers, but the process appears to be slow. Those who are interested in this important question—and everyone ought to be—should read Miss Macnaghten's book. The impressive way in which she has marshalled the facts, and her admirable restraint in presenting them, makes it a much more moving document than any mere appeal to sentiment.

THE PSYCHOLOGY OF THE OPIUM ADDICT

THE mental reactions to opium in the various stages of entry into intoxication and emerging therefrom, have been written about by many, either from the point of view of the therapist or the victim, and some of the descriptions have become classical. This will not happen in the case of the diary of that strange modern author, M. Jean Cocteau,[1] for his impressions are not recorded in a sufficiently comprehensible manner. No doubt their incoherence is a proof of their genuine production during phases of mental disorder, but their pertinence is obscured by the disjointed method of the confessions. The main message is delivered clearly enough however; Cocteau has no horror of the opiate, and pleads strongly for its use at certain times and with certain reservations. The little book is largely made up of literary reflections and reminiscences which are sometimes very revealing—for instance, the references to Marcel Proust will help to explain impressions which many readers must have derived from reading that fantastic person's pages. The illustrations are by turns comic, terrible, idiotic, and remarkable in their suggestiveness, thus fitting appositely the text.

[1] Opium, the Diary of an Addict. By Jean Cocteau. translated by Ernest Boyd. 27 Illustrations by the author, London: Geo. Allen and Unwin, Ltd. 1933. Pp. 188. 5s.

MALARIA AND CLIMATE

As is well known, both the number and the kind of cases of malaria are much affected by temperature; malignant tertian occurs in the warmest regions and the hottest seasons, quartan extends to cooler countries and cooler seasons, while benign tertian overlaps both. Dr. D. Guelmino,[1] of the Sombor bacteriological station in Jugoslavia, says that the relations of the three kinds are easily studied in the long Vardar valley, which runs through the country from north to south, to end near Salonica. The climate of the valley is, in the north, middle European; but about Mitrovitza the influences change, and from there southwards it becomes more and more Mediterranean, and the malaria more malignant. Differences are not only in latitude, for the (warmer) left or east bank of the river is more malarious than the (colder) right or western bank, shadowed as this latter is by the high, perhaps snow-clad, mountains. There are of course other varying conditions (breeding places, cultivation, population, housing), but Guelmino's paper is chiefly concerned with temperature. This has little influence, he points out, on the development of the plasmodium in man, but much on its development in the mosquito. Thus at Plevlje, 2250 feet above the sea, fresh infections with malaria are very rare, for the daily range, 20° C., means cold nights, and it is the night temperature to which they are exposed after feeding that governs development in mosquitoes. Benign tertian infections begin in spring when temperature has reached 18° C., and occur from April to the end of October; malignant tertian infections start when the temperature has reached 20° C., and appear from July to October; while quartan do not occur in the hottest period, but in the weeks at the beginning and end of the season, so long as the temperature is not above 18° C. Quartan is the least common of the three, accounting for about 2 per cent. of total cases, but is relatively often met with in the mountains where the night temperature is lowest and mosquitoes are less easily infected by the other sorts. Mosquitoes are scarce at the most suitable times for quartan infection—namely, April and October.

THE SENSE OF GUILT

IN a recent number of the journal[2] of the National Council for Mental Hygiene, Dr. Mary Barkas emphasises the value of the sense of guilt in individual and social development, and considers how its inevitable appearance in the mind of a child may be so handled as to utilise it satisfactorily. In the very young child, she says, the first appreciation of the external world is vague; early development takes place on pleasure-pain lines, but side by side with this form of conduct regulation there develops another set of standards depending upon the emotional relations between the child and its parents. The mother or nurse is recognised as a source of approval or disapproval, reward or punishment, and forms the basis of conscience and the standard of morality. Subsequent difficulties from a distorted sense of guilt are largely bound up with the way in which this ego-ideal is formed. At an early stage the child realises that it can exercise an independent will and defy authority, but such defiance is felt to be wrong and the first affirmation of self-will comes to be associated with a sense of guilt. The next stage depends on the conflict between love and hatred for one and the same parent. With puberty and the awakening of the sex instinct guilt arises from the conflict between loved authority and its own uncontrolled impulses. Dr. Barkas recommends adults to avoid setting themselves up as ideals of perfection which a child could not possibly follow and which he would later despise. Sound education, she believes, lies in utilising the sense of guilt in such a way as to raise the standard of human contact and social relationship.

[1] Arch. f. Schiffs- u. Trop.-Hyg., March, 1933, p. 141.
[2] Mental Hygiene, No. 6. Obtainable from 78, Chandos House, Palmer-street, S.W.1. 6d. net.

In the same issue Dr. E. Graham Howe writes on Conflict and Character; Dr. William Brown on Rationalisation, with special reference to the cure of hysterical symptoms by psychotherapy; Dr. Isabel Wilson on importance of day-dreams for good or evil; and Dr. R. G. Gordon on Envy, Hatred, and Malice. These papers will be found useful by all who wish to teach psychology in intelligible and persuasive language.

THE DOCTOR'S PRIVATE LIFE

HAVING regard to the old pastoral character of the North Eastern States, with their proximity to New York, and to the feverish alteration of moral and material values in America as elsewhere following upon the war, a description of the life of a country doctor offers a splendid opening for a novelist of capacity. Mr. Cozzens has the capacity, and shows it by clear and powerful writing and a remarkably sound grounding in medicine; but the medicine of his book [1] is much lost in other things.

The principal character is a New England country doctor, sensible, cheerful, hard-working, old-fashioned, and frankly immoral. The sub-title of the book, "A doctor's private life is no concern . . ." is to this extent justified in him, that his intrigue has nothing whatever to do with his professional work; and there is no suggestion that he took any advantage in his capacity as doctor of opportunities which would have offered themselves, judging by the morals of many with whom he must have come into contact. But it is not squeamishness that causes a reviewer to regret the insistence with which sexuality is insisted upon throughout the graphic unpleasant story; it is rather the feeling that the author's admirable theme is damaged by a want of balance.

THE SWELLING OF PROTEINS

THE International Society of Leather Trade Chemists devoted much of its earlier activities to the improvement of analytical methods for leather—a big task in which a good measure of success was reached. The meeting of the society in December of last year marked an epoch in its deliberations, being devoted entirely to a symposium on the swelling of proteins. The plumping of hides during the various processes to which they are submitted has been known to tanners from the time of Simon of Joppa, or longer, and the swelling of gelatin has been equally familiar to carpenters in preparing glue and to housewives in making jellies. These simple phenomena prompted Prof. F. G. Donnan to explain his theory of equilibrium, and other physical and colloid chemists, including Dr. Dorothy Jordan Lloyd, director of the Leather Trades Research Association, to discuss the swelling of proteins in acid, alkaline, and neutral solutions. The pamphlet of 124 pages containing their papers may have some interest for the biochemist. The price is 5s. 6d. and it can be bought at 17, Market-street, London, S.E.1.

ABOUT WINE

A CHATTY little book about the drinking of wine, dealing with its proper service, the tests for appreciation, the years of choice, and the appropriate meats to accompany its ingestion comes from M. Marcel Boulestin,[2] at the season when there are congregated in London those who have the money and the desire to entertain elegantly and are willing to be themselves elegantly entertained. There is nothing new in the book for the information of those to whom the literature of wine is familiar reading, but many elementary truths are neatly stated and certain popular errors are corrected. The cocktail habit, as practised in England, is denounced as "a vice unless it be a mortification." The price of this slim booklet is justified by its address to those who spend money freely; upon others its counsel would be wasted.

[1] A Cure of Flesh. By James Gould Cozzens. London: Longmans, Green and Co., Ltd. Pp. 290. 7s. 6d.
[2] What Shall We Have to Drink? By X. M. Boulestin. London: Wm. Heinemann Ltd. 1933. Pp. 85. 3s. 6d.

EARLY TO BED

THE director of studies at Duisburg,[1] a large town in the Rhineland, claims that by altering the balance and rhythm of sleeping and waking hours the mental and physical efficiency of the human race could be increased. Fifteen experiments, of which four are described in detail, are recorded which suggest that the ideal amount of sleep is 4 to 5 hours in the 24, and that the best time for it is before midnight. The experiments were carried out on four youths, aged 17–19, all at schools save one who was preparing himself for matriculation while working in an office. Of these youths, two were sickly and one quite healthy; no particulars are given of the health of the fourth. They all found by experiment that if they went to bed at 7 P.M. they woke spontaneously at about 11.20, and were able to get up, work through the night, and then go to school or office the next day. Their work improved in quality; and far from showing any signs of fatigue after carrying out this régime for periods varying from six months to a year, their health and appetite were unimpaired, or even improved. The director of studies is delighted with the success of the experiment and quotes the old proverb that sleep before midnight is worth double. He says the system has already been tentatively adopted in one boarding-school, and regrets that no experiments with younger children have as yet been undertaken. After all, however, young children are asleep in the ordinary way during the magic hours of 7–11.30 P.M., and do not seem anxious to get out of bed before daylight.

The examples given are all from a restricted class of people: the subjects of the experiment are all at school; they are all working for examinations; they are all, within a year or so, of the same age; and none of them are engaged in physical work. It is possible that the work they have to do by themselves is much more of a strain on them than what they learn, spoon-fed, at school, or (in the one case) than work in an office. They may therefore experience benefit from undertaking this more exacting work immediately after their period of rest.

A SPECIAL SPA NUMBER

THE *Medical Press and Circular* for May 10th is devoted almost entirely to medical treatment at British spas, and contains a series of original papers on the organisation of spa treatment and some aspects of its application. The editors of the *Medical Press* consider that the problem of adapting the old spa to meet modern demands may prove a difficult one. The British spa has to meet not merely the scepticism of the present age and the clever propaganda of the foreign spa, but also the curious idea that commercial success is not in keeping with modern ethics. Their own thesis repeatedly emphasised is that, if a spa has to be subsidised out of rates or other means, there must be something sadly missing. What they find wrong are bad organisation, old-fashioned methods, and in many cases old-fashioned buildings.

TUMOURS OF THE ROUND LIGAMENT

Dr. Cyrus F. Horine has collected[2] 36 cases of different types of tumours of the round ligament which have been reported since 1914. The ages of the patients ranged from birth to 76 years, the average age in 31 cases being 38 years. In 22 the tumour occurred on the right side, in 9 on the left, in 2 it was bilateral, while in 3 the situation was not recorded. The symptoms as a rule were very slight, and chiefly consisted of pain at the site of the tumour during menstruation. The nature of the tumour in the 36 cases was as follows: fibroma, 6 cases; myoma, 5; adenomyoma, 4; dermoid cyst, sarcoma, fibrosarcoma, Wolff's tumour, and varicosities, 2 cases each; and cystic fibroma, cystic lymphangioma, fibroleiomyoma, leiomyoangioma, fibromyosarcoma, fibromyxoma, fibromyxoleiomyoma, lipoma, osseous tumour, and lymphatic gland in ligament, 1 case each. Horine's own patient was a woman, aged 54, the mother of three children born at full term, who had had a swelling in each inguinal region for a year before admission to hospital. A diagnosis of bilateral hydrocele of the canal of Nuck was made and an operation performed. On the right side a hydrocele of the canal of Nuck was found and removed, while on the left an encapsulated fatty tumour was found adherent to the extraperitoneal portion of the round ligament from which it was separated. The issue of the case is not recorded.

[1] Münch. med. Woch., March 17th, p. 422.
[2] Amer. Jour. Obst. and Gyn., 1933, xxv., 446.

"HAIRY TONGUE"

Dr. C. A. Mather (Hales Owen) writes: I should be grateful for suggestions on the diagnosis or treatment of so-called hairy tongue. The man is a foreman bricklayer of 45 years, who is intelligent and firm in his conviction that he developed the condition only after inoculation while in the Army. The inoculation upset him considerably and produced what seems to have been an attack of anaphylaxis. He subsequently developed an exfoliating lichen planus of the whole body and was gravely ill, the tongue being at this time much worse. The tongue is covered with a greyish-brown thick hairy growth of the dorsum. The sides and tip are clean. The man has a hypochlorhydria and has been taking acid for 14 months, and painting the tongue with aqueous gentian violet. There is no change. X rays produced an exfoliation for a time but was stopped on the advice of a radiologist. The condition remains the same. Recently a small overdose of a vaccine containing streptococci and staphylococci produced a marked reaction.

UNWANTED BICYCLES

THE Secretary of the Cyclists' Touring Club writes: "Will you permit me through your columns to call attention to a serious problem confronting unemployed men and women to-day? The search for work is obviously limited by the transport available, and in many cases the acceptance of a post is conditional upon cheap transport being at hand. The Cyclists' Touring Club is endeavouring to collect as many unwanted bicycles as possible and to distribute these among really deserving cases. Offers should be made to me on a postcard, stating the size of the machine." The Club's address is 3, Craven-hill, London, W.2.

SPECIAL USE FOR AN ELECTRICAL AID TO HEARING.—Sir James Dundas-Grant writes: The secretary of the National Institute for the Deaf has drawn my attention to the fact that my name has been figuring in a list of doctors and others using a certain electrical aid for hearing, suggesting that I am using it on account of deafness of a degree to require such an appliance. This is not the case. The use to which I have put it has been to take the place of the auscultation tube with an ivory tip when inflating ears with the Eustachian catheter or Politzer bag. This occasioned some irritation in the meatus, and I was advised to give up its use. I found that by applying the receiver of the electrical aid over my ear (kept in place by a spring over the top of the head) while the patient held the transmitter closely applied to his ear, I was able to appreciate the sounds produced by the air passing through the Eustachian tube and into the tympanic cavity, though not so well as with the ordinary auscultation tube. I would recommend this form of apparatus to any of my otological confrères who have experienced the same discomfort.

THE REGISTER OF VETERINARY SURGEONS for 1933 has been issued this year without the Acts and Charters of the Royal College of Veterinary Surgeons, which are now published separately; the present volume contains the annual report of the College for 1931–32, the by-laws and schedules of examination, and the various registers of members—all reset in modern type and format. The Register may be obtained for 5*s.* from the secretary of the College, 10, Red Lion-square, London, W.C.1. The volume of Acts and Charters also costs the same sum.